Océ User manual

Arizona 250 GT

User Manual Rev B

Océ-Technologies B.V.

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Table of Contents

Chapter 1
Introduction 5
Preface. 6
Product Compliance. 9

Chapter 2
Product Overview 13
Arizona 250 GT Printer Specifications 14

Chapter 3
Safety Information 17
Safety Guidelines for Ink Materials 18
UV Curing System Safety 23
Interlock Safety System 25
Arizona 250 GT Safety Labels 27
Safety Awareness 29

Chapter 4
How to Navigate the User Interface 39
Operator Interface Hardware 40
Operator Interface Software. 46
Print Job Control Module 48
Printer Setup Module 56
Special Prints Module 58
Installation and Upgrade Module 60

Chapter 5
How to Operate the Arizona 250 GT 61
Training Requirements. 62
How to Switch the Printer On and Off 63
How to Install the Onyx Printer Driver 67
How to Manage Print Jobs. 70
Daily Start-up and Shut-down 70
How to Set Up a Print Job. 71
How to Manage the Media Vacuum. 74
The Media Vacuum System 74
How to Create Custom Vacuum Zones. 77
How to Manage Media 80
How to Handle Media 80
Underlay Board to Reduce Artifacts. 83

Chapter 6
Ink System Management 85
Arizona 250 GT Ink 86
How to Change Ink Bags 90

Chapter 7
Error Handling and Troubleshooting 93
Troubleshooting Overview 94
How To Improve Quality When Banding Occurs 96

Chapter 8
Printer Maintenance 97
Maintenance Guidelines 98
Maintenance Procedures 100
Printhead Maintenance 100
Swab Printheads 105
Clean Carriage Underside 108
Remove Ink From the Table 110
Empty the Ink Waste Tray 111
Clean UV Lamp Filters 113
Fill the Coolant Reservoir 114
Clean Gantry Rails 116
Change Ink Filters 117
How to Change a UV Lamp 119
Print a Nozzle Check 121

Appendix A
Application Hints and Tips 125
Hints and Tips 126

Chapter 1
Introduction

Preface

Summary

This User Guide introduces you to the Océ Arizona® 250 GT inkjet printer. It will orient you to the many features and procedures that enable you to print quality images on various media.

Océ DGS on the Internet

For further information on documentation and support for your Arizona 250 GT or for information on other Océ Display Graphics Systems products, please visit our web site: http://www.dgs.oce.com
To provide feedback and report errors in this document:
DGSTechnical.Writer@oce.com

Safety Information

This manual has three sections that contain details on safety when handling ink and using the printer. Also, where applicable, cautions and warnings are used throughout this manual to draw your attention to safety precautions.

- "Safety Guidelines for Ink Materials" offers advice in the proper handling of UV inks;
- "Interlock Safety System" explains the safety features built in to the printer that prevent and minimize access to Mechanical, Electrical, Thermal and UV hazards; and
- "UV Curing System Safety" presents warning about the dangers of exposure to UV light. Some of the material from that section are duplicated here.

UV Curing System Safety

Caution: UV Light Hazard: Wear Eye and Skin Protection. Eyewear, Gloves, and Long Sleeves are essential for Users and Bystanders. Special restrictions and protective measures are essential - These include the use of Eye and Dermal (skin) Protection. Industrial Protective Eyewear with lenses that block both UVA and UVB must be used. Long sleeved work clothes and gloves are essential to reduce the Skin's exposure to UV emissions. Avoid looking directly at UV lamps.

Caution: Warning for Seated Individuals: The UV Emissions and Blue Light Emissions profile of the Arizona 250 GT is at its worst for individuals in a seated position (Table Height of 90cm). Remove all chairs within 5 metres (16 feet) of the printer.

UltraViolet Light Radiation Hazards Emission:
Effective UV-irradiance Emission Category of Arizona 250 GT According to 7.1 of EN12198-1:2000 (Category 2) - Special restrictions and protective measures are essential - These include the use of Eye and Dermal (skin) Protection. Industrial Protective Eyewear with lenses that block both UVA and UVB must be used. Long sleeved work clothes and gloves are essential to reduce the Skin's exposure to UV emissions.

Blue Light Radiation Hazards Emission (Visible radiation in the range of 400nm to 700nm (Blue Light 300nm - 700nm):
Effective Irradiance respective the Effective Radiance Emission Category of Arizona 250 GT According to 7.1 of EN12198-1:2000 (Category 1).

Customer Service

If you are unable to resolve problems, field engineers can be dispatched to your site to conduct repairs. Service visits are paid for by the customer, either under a maintenance agreement, by purchase order or prepayment. Time and material rates are charged for any service not covered under a maintenance agreement. Before calling to report a problem, gather as much information about the problem as possible and have it ready to provide to the customer care center engineer. The more information you can provide initially, the more quickly the problem can be corrected.

Responsibilities of the Operator

The operator of the Arizona 250 GT must be properly trained. Océ provides training for the operator in the use of the printer hardware and software at the time of installation. It is the customer's responsibility to ensure that only properly trained personnel operate the printer. Operators must be fully versed in the operation of Onyx ProductionHouse® . For any operator unfamiliar with its operation, Onyx ProductionHouse® training is required. Training courses are available; contact your local Océ representative.
The operator or other trained personnel are expected to handle all user maintenance as detailed in the User Guide, and also replacement of consumable parts (except print heads). If your site has a technician in charge of printer maintenance, that person is the optimal candidate. While any trained operator may perform routine maintenance, the best maintenance results from familiarity with the printer's internal operation and history.

The printer requires some daily maintenance. Periodic cleaning must be scheduled for some components on a weekly basis. A few minutes spent cleaning ensures the highest quality prints. Several areas require maintenance to ensure the highest print quality, and the printer design gives you easy access to all these areas.
It is the responsibility of the operator to try to eliminate simple problems before calling a service representative. But knowing when to call for service is also important. An untrained operator must not attempt to service the printer as this may cause further damage. When you have determined that a service call is required, call as soon as possible. See the Maintenance section for more details.

Responsibilities of the Arizona 250 GT Service Technician

Field service technicians must have Océ Display Graphics Systems Arizona 250 GT service training. The service technician is responsible for all repairs, upgrading and modification requested by the customer or mandated by the Océ Display Graphics Systems Service and Support Group. Service personnel are furnished with proper tools for the installation and maintenance of the printer. In addition to the tools and custom kits, each engineer will have basic tools for proper maintenance and servicing.

Statement of Foreseen Use

The Arizona 250 GT flatbed inkjet printer uses piezo printing technology and UV curable inks to produce outdoor-durable output. It can print directly onto rigid and flexible substrates up to 2.5 m (98.4") x 1.25 (49.2") and up to 0.48 mm (1.89") thickness. The printer holds substrates stationary while the print head assembly moves across to create the print, eliminating image skew problems associated with rigid stock feed systems.

Product Compliance

Introduction

This section details the compliance and agency standards that the Arizona 250 GT conforms to. It also provides manufacturing and contact information.

Electromagnetic Compatibility

This equipment generates, uses and radiates radio frequency energy and if not installed and used as designed or intended, may cause interference to radio communications. This equipment has been tested and found to comply with the limits for a Class A computing device. This equipment has been designed to provide reasonable protection against such interference when operated in residential and commercial environments. Operation of this equipment in a residential area may cause interference, in which case the user, at his own expense, is required to take whatever measures are required to correct the interference.

Compliance Category

This device complies with Class A emmision limits.
This equipment is considered to be information technology equipment for use in a light industrial setting. The equipment falls under the scope of the Machinery Directive due to the movement associated with the gantry carrying the printer head carriage assembly. As such, a full risk assessment per EN 1050 and a full mechanical and machinery assessment per 292-2 + A1 Annex 1 was performed. As the equipment is primarily information technology equipment (large format printer receiving data from a computer terminal), and is within the scope of EN 60950 (mains operated ITE equipment under 600V including plotters and photoprinters - clause 1.1.1, EN 60950: 2000), a full electrical evaluation was performed per EN 60950:2000.

Agency Compliance and Standards

The Arizona 250 GT complies to the following Agencies and Standards:
Note: Third Party confirmation of all declared will be obtained.
Safety
CSA 60950-1:2003, UL 60950:2002, EN60950-1, IEC 60950-1:2001
CB Scheme Report and Certificate, EN60204 including Annex 1
EMC
EMC Directive: CE Marking
EN55022: 1998 Information Technology Equipment. Emmisions Characteristics.
EN55024: 1998 Information Technology Equipment. Immunity Characteristics.
EN 61000-6-3:2001 Emissions: Residential, Commercial and Light-Industrial Equipment, Generic

EN 61000-6-1:2001 Immunity: Residential, Commercial and Light-Industrial Equipment, Generic
R&TTE Directive: ETSI EN 301 489-01 V1.5.1, ETSI EN 301 489-03 V1.4.1
USA and Canada: 47 CFR Part 15 & Industry Canada

Noise Measurement Test Summary

Tested according to EN13023:2003, EN11204, ISO3744:1994(E)/ISO3746:1995(E) and declared according to ISO4871:1984(E)
Measurements taken at the sample in 5 different locations, Printer in normal operation with Vacuum Pump, does not exceed 75dB (maximum measured value: 66dB). For all locations, provide noise protection enclosure or remove pump from location.

Manufacturer:

Océ Display Graphics Systems (ODGS)
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Toxic and Hazardous Substances or Elements in the Product

Part Name	Lead (pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent (CrVI)	Polybromiated biphenyls (PBB)	Polybrominated dipenyletther (PBDE)
UV Curing Lamps	0	X	0	0	0	0
VGA Monitor	0	X	0	0	0	0
Vacuum Guage Indicator	X	0	0	0	0	0
Linear Encoder Readheads	X	0	0	0	0	0
Printheads	X	0	0	0	0	0

FCC Notice

This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:

1) This device may not cause harmful interference, and
2) This device must accept any interference received, including interference that may cause undesired operation.

Any change or modification not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Chapter 2
Product Overview

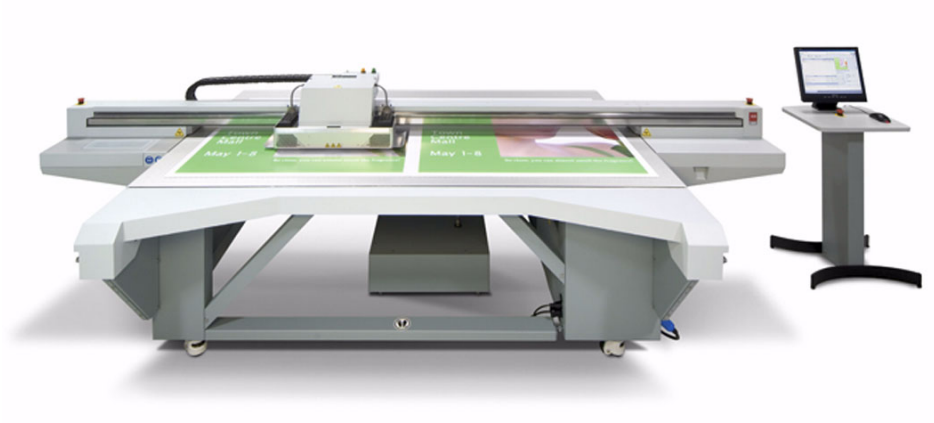
Arizona 250 GT Printer Specifications

Introduction

The Arizona 250 GT is a 4 color (CMYK) UV flatbed inkjet printer capable of producing large format images on various rigid and flexible media. The printer consists of a large vacuum table and moving gantry. The material is held flat and stationary on the vacuum table during printing. The gantry contains a carriage that sweeps across the table as the gantry moves in steps along the length of the table to print an image on the media. In addition to the benefits of stationary positioning, the use of UV ink technology on rigid material eliminates finishing processes such as mounting and lamination.

Note: *The Arizona 250 GT must be operated in accordance with the environmental conditions specified in the Arizona 250 GT Site Preparation Guide and safety requirements noted in this document.*

Illustration



[1] Arizona 250 GT Printer

Arizona 250 GT Specifications

[2] Specifications (1 – 2)

Feature	Specification
Printing Technology	Piezoelectric inkjet using Océ VariaDot™ technology; with two variable dot printheads per color, 8 in total.
Print Speed	Production Mode: 16 m2/hour (172 ft2/h)

[2] Specifications (2 – 2)

Feature	Specification
Ink System	UV-curable inks available in Black, Cyan, Magenta and Yellow. Packaged in quick-change, 2 liter ink bags.
Maximum Media Size	2.5m (98.4") x 1.25m (49.2")
Maximum Media Thickness	48mm (1.890")
Maximum Print Size	2.51m (98.8") x 1.26m (49.6")
Maximum Media Weight	34 kg/sqm (7 lbs/sqft)
Nozzle Drop Volume: Variable droplet sizes from 6 to 42 picolitres	The ability to vary the drop size to as little as 6 picolitres produces sharp images with smoother gradients and quartertones. The ability to jet larger droplets up to 42 picolitres produces dense, solid colors. The result is near-photographic image quality. Text as small as 6 pt. is perfectly legible.
Print Modes / Productivity	**Production**: 16 sq.metres/hr. (170 sq.ft./hr.) **Quality**: 12 sq.metres/hr.)130 sq.ft./hr.) **Quality-Matte**: 8 sq. metres/hr. (85 sq. ft./hr.) **Fine Art**: 8 sq.metres/hr. (85 sq.ft./hr.)
Ink Colors	Black, Cyan, Magenta, Yellow
Curing System	UV curing lamp
Weight	544kg (1200lbs)
Dimensions	Table: 2.65m (8.7 ft.) 2.00m (6.5 ft.) Gantry: 4.0m (13.4 ft.) x .45 m (x 1.5 ft.)
Power Requirements	Voltage: 208 through 240VAC ±10% 60Hz Single Phase, Rated Current: 16A 200 through 240VAC ±10% 50Hz Single Phase, Rated Current: 16A Recommended Circuit Breaker: North America 20A, European Union 16A
Hardware Interface	USB, Ethernet TCP/IP, 100 base-T
Image Processing Software	ONYX® ProductionHouse Océ Edition version 7 or greater (ONYX® PosterShop available but not recommended). The driver for the Arizona 250 GT is included in the ProductionHouse Océ edition, but is not in the PosterShop Océ edition.

Océ VariaDot™ Variable Droplet Imaging Technology

The Océ Arizona 250 GT offers superior print quality and ink economy through the use of Océ VariaDot imaging technology, the next evolution in piezoelectric inkjet technology that enables a print head to produce droplets of varying volume. This differs from the current piezoelectric print head technology that is restricted to the use of fixed droplets. The use of variable sized droplets results in dots on the media of varying size (area) and density which in turn allows the use of four-color (CMYK) printing for all image features. Using Océ VariaDot imaging technology results in excellent print quality and a superior ink economy over 6-color printing systems.

Océ VariaDot imaging technology allows piezoelectric print heads to produce droplets of varying volume on demand. This allows the ONYX™ ProductionHouse software to specify the appropriate droplet size for each specific image feature. When imaging fine detail such as small type or fine lines, very small droplets can be used, when imaging areas of tonal transition or quarter-tone values such as skin tones drops of medium volume can be used and when printing areas of high density such as solid colors, large droplets can be used.

Océ VariaDot™ for Improved Image Quality

Océ VariaDot imaging technology can be compared to painting a room in your house. You use a large brush size for quick coverage over large areas and a much smaller, finer brush for detailed areas. Trying to paint a large wall with a tiny brush would result in many artefacts and trying to paint a fine fresco trim with a large brush would be very frustrating. In the same way, Océ VariaDot uses the appropriate size droplet for each specific image feature resulting in the best possible image quality in every part of the printed image.

Océ VariaDot™ for Reduced Ink Consumption

A significant benefit of Océ VariaDot imaging technology is that it allows the use of only four inks (CMYK) for all areas of the printed image. This is very significant to the user in terms of ink consumption per square meter because the current "de facto standard" in the industry is six-color piezoelectric printing. This older technology uses lighter versions of Cyan and Magenta inks, often referred to commercially as "Light Cyan" and "Light Magenta" to overcome the image quality problem previously associated with four-color (CMYK only) printing.

Chapter 3
Safety Information

Safety Guidelines for Ink Materials

Introduction

This section outlines the safety concerns involved with the handling and use of the UV ink and Flush for the Arizona 250 GT printer. Read all of the material in this section and also review the Material Safety Data Sheet (MSDS) documents before handling any UV ink or using the printer.

Note: *The full text of the MSDS for all UV inks and Flush is found on the ODGS web site at the following location: http://www.dgs.oce.com/PrinterSupport/MSDS_Support/MSDS_Sheets.htm*

Caution: Both UV inks and the curing lamps can be harmful if not properly handled. Follow these guidelines carefully in order to ensure maximum safety.

Personal Safety

The operator should wear nitrile gloves, a protective apron, and safety glasses with side shields when handling inks.

Note: ***Warning for Seated Individuals***- *The UV Curing System on the Arizona 250 GT generates hazardous levels of thermal, electrical and UV energies. UV light exposure is at it's worst for individuals in a seated position (Table Height of 90cm). Do not sit within 5 metres of the printer and do not look at the UV lamps if your eyes are positioned below the level of the printer table.*

Ventilation and Room Volume

The minimum space/ working room volume for using the Arizona 250 GT is 69 m3 or 2430 cubic feet. The printer should operate in an area where a good standard of general ventilation is available at 5 to 10 air changes per hour. Mechanical Ventilation must be added where the air changes per hour are under 5 per hour.

Handling UV Inks

Read and practice safety guidelines as outlined in the MSDS for each ink. Post these documents in the work area as required by prevailing law. MSDS for all four inks are provided when you purchase inks. The following is a summary of the important safety aspects of the MSDS that are common to all UV inks.

[3] Immediate (Acute) Health Effects by Route of Exposure

Exposure by:	Effect:
Inhalation:	Can cause severe respiratory irritation, dizziness, weakness, fatigue, nausea, headache and possible unconsciousness.
Skin Contact:	Can cause severe irritation, defatting, and dermatitis. Irritation effects may last for hours or days but will not likely result in permanent damage.
Eye Contact:	Corrosive to eye tissue. Can cause severe irritation, tearing, and burns that can quickly lead to permanent injury including blindness.
Ingestion:	Severely irritating to mouth, throat, and stomach. Can cause abdominal discomfort, nausea, vomiting and diarrhea.

[4] Long-Term (Chronic) Health Effects

Exposure by:	Effect
Inhalation:	Upon prolonged and/or repeated exposure, can cause severe respiratory irritation, dizziness, weakness, fatigue, nausea, headache and possible unconsciousness.
Skin Contact:	Upon prolonged or repeated contact can cause severe irritation, defatting, and dermatitis. May cause lingering affects but not likely to result in permanent damage if the exposure is eliminated. Upon prolonged or repeated exposure, harmful if absorbed through the skin. May cause severe irritation and systemic damage

[5] First-aid Measures (1 – 2)

Exposure by:	Remedy
Inhalation	Remove to fresh air. If breathing is difficult, have a trained individual administer oxygen. If not breathing, give artificial respiration and have a trained individual administer oxygen. Get medical attention immediately.
Eyes	Immediately flush eyes with plenty of water for at least 20 minutes retracting eyelids often. This corrosive material can cause immediate and permanent eye damage. Tilt the head to prevent chemical from transferring to the uncontaminated eye. Get immediate medical attention and monitor the eye as advised by your physician.

[5] First-aid Measures (2 – 2)

Exposure by:	Remedy
Skin Contact	Wash with soap and water. Remove contaminated clothing, launder immediately, and discard contaminated leather goods. Get medical attention immediately.
Ingestion	Severely irritating. Do not induce vomiting. Seek medical attention immediately. Drink 2 glasses of water or milk to dilute.

[6] Accidental Release Measures - Dealing With Spilled Ink

Personal Precautions and Equipment	Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section VIII of this MSDS. Personal protective equipment needs must be evaluated based on information provided on the MSDS sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.

[7] Handling & Storage

Handling Precautions	Toxic or severely irritating material. Avoid contacting and avoid breathing the material. Use only in a well ventilated area. As with all chemicals, good industrial hygiene practices should be followed when handling this material. Avoid contact with material, avoid breathing dusts or fumes, use only in a well ventilated area. Wash thoroughly after handling. Do not get in eyes, on skin or clothing. Remove contaminated clothing and wash before reuse.
Storage Conditions	Store in a cool dry place. Isolate from incompatible materials.

[8] Exposure Controls

Engineering Measures	Local exhaust ventilation or other engineering controls are normally required when handling or using this product to avoid overexposure. It is recommended that facilities storing or using this material be equipped with an eyewash and safety shower.

[9] Personal Protection (1 – 2)

Area	**Strategy**
Respiratory Protection	Follow a respiratory protection program that meets 29 CFR 1910.134 and ANSI Z88.2 requirements whenever work place conditions warrant the use of a respirator. Respiratory protection may be required in addition to ventilation depending upon conditions of use.
Eye Protection	Wear safety glasses with side shields when handling this product. Wear additional eye protection such as chemical splash goggles and/or face shield when the possibility exists for eye contact with splashing or spraying liquid, or airborne material. Do not wear contact lenses. Have an eye wash station available.

[9] Personal Protection (2 – 2)

Area	Strategy
Skin Protection	Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work. Use of protective coveralls and long sleeves is recommended.
Gloves	Wear impervious material.

Disposal of UV Ink

[10] Disposal Considerations

Disposal Methods	Dispose in accordance with Federal, State, Provincial and Local regulations. Material may be compatible with industrial waste incineration or inclusion in a fuel blending program. This characterization is subject to approval by your waste management contractor. This material should be recycled if possible.

UV Curing System Safety

Introduction

The UV Curing System on the Arizona 250 GT generates hazardous levels of thermal, electrical and UV energies.

The Arizona 250 GT printer uses UV-curable ink that needs a high energy level of UV light to cure. The system is made up of two medium pressure mercury arc lamps attached to the carriage. The ink has been designed using the proper photo-initiator to cure at the highest efficient wavelength of the Lamp (366nm).
UV Lamp Hazards: Superficial eye damage and burning of the skin can occur with even brief exposure to UV light. Serious injuries can result from prolonged exposure, especially if unshielded. UV lamps operate at very high temperatures (approximately 800° Centigrade). For this reason, never touch a lamp which has been in operation. Let the lamp cool before attempting any maintenance, and then use extreme care in handling the lamp cartridges. The UV bulbs contain a small amount of metallic mercury which is toxic when ingested, handled, or breathed. Therefore, if bulbs are broken, care should be taken to clean up the spill immediately, and then disposed of according to local regulations concerning Mercury disposal.

Bare skin contact with the UV lamps must be avoided. Compounds from the skin when heated on lamps operating at 600 to 850° C will form permanent etching on the quartz surface that can decrease UV energy transmission. A contaminated lamp eventually may overheat, causing premature failure.

Ozone: Ozone is a toxic gas which all medium pressure UV lamps create. As the lamp warms up, it briefly passes through a section of the light spectrum which excites oxygen molecules enough to create ozone. Once a UV lamp has completely warmed up, only very minute amounts of ozone are present.

Note: *The Arizona 250 GT printer has a built-in interlock safety system that shuts down the motion motors if the interlock is tripped. This ensures that the operator is not exposed to any hazards. The interlock system includes an aluminum safety gate around the perimeter of the carriage that reduces the UV light exposure and also stops carriage motion if it is not properly seated. See the section "(see 'Interlock Safety System' on page 25)" for more details on how it works.*

Caution: Warning for Seated Individuals: The UV Emissions and Blue Light Emissions profile of the Arizona 250 GT is at its worst for individuals in a seated position (Table Height of 90cm). Remove all chairs within 5 metres (16 feet) of the printer.

Caution: UltraViolet Light Radiation Hazards Emission: Effective UV-irradiance Emission Category of Arizona 250 GT According to 7.1 of EN12198-1:2000 (Category 2) - Special restrictions and protective measures are essential - These include the use of Eye and Dermal (skin) Protection. Industrial Protective Eyewear with lenses that block both UVA and UVB must be used. Long sleeved work clothes and gloves are essential to reduce the Skin's exposure to UV emissions.

UltraViolet and Blue Light Hazards Categories

Blue Light Radiation Hazards Emission (Visible radiation in the range of 400nm to 700nm (Blue Light 300nm - 700nm):
Effective Irradiance respective the Effective Radiance Emission Category of Arizona 250 GT According to 7.1 of EN12198-1:2000 (Category 1).

Interlock Safety System

Introduction

The Arizona 250 GT printer has an integrated safety interlock system that stops all machine motion when a situation that might compromise operator safety occurs. The printer has three Emergency-Stop buttons: one on each end of the gantry, and one on the Control Station podium. Activating an Emergency-Stop button will switch the Safety Monitoring Relay input circuits. This causes the system to isolate the power to the motion control motors, and also turns off the Arizona 250 GT curing system (UV lamps). The Maintenance Station and the Safety Gate on the carriage also have an interlock function. Beacons lights indicate the status of the safety system as explained in this section.

How the Interlock System Works

All system Interlock circuits operate as one. This means that any open interlock switch and/or Emergency Stop switch kills motion ability in all system electronics. Drive(s) needed for media loading purposes are exempt from this requirement. Both System PCB's contain the same Safety Interlock Circuit that functions as a single unit. However, an over-current condition in the Drive circuit on one PCB can disable itself without the knowledge/action of the other PCB's.

Emergency Stop Function:
There are three Emergency Stop buttons, one is located at the Operator Control Station, and one at each end of the Gantry. The fourth Emergency Stop is the AC power Supply Disconnect. Motion Motors that are disabled include the Gantry Drive, Carriage Drive, Z-Axis Drive (Carriage up and down movement), all Ink and Maintenance Pumps, Heaters, Table Vacuum Pump, and UV Lamps (not UV Cooling Fans).
Upon release (reset) of an Emergency Stop, no motion may be initiated without acknowledgment of the Operator, i.e. User interface message on the LCD display with Operator intervention acknowledgment. To re-activate the printer after you press an Emergency Stop button, turn the button counter-clockwise. If the printer has encountered an error, you must correct that error first. Errors are displayed on the LCD panel that is part of the Control Station. When the error is corrected, release the Emergency-Stop button, acknowledge the User interface message and continue printer operation.

Maintenance Station Interlock Function:
The Maintenance Station is located under the carriage and provides access to clean the printheads. Carriage and Gantry motion motors are disabled and UV lamps are turned off (if they were On), when the station sliding door is open. This includes the Gantry Drive and Carriage Drive. Interlock system is automatically reset when

sliding door is closed. No User interface message with operator acknowledgment is required to re-enable function of the printer.

Safety Guard Interlock Function:
The Safety Guard is an aluminum fence around the perimeter of the carriage. Motion Motors disabled when it is not properly seated include the Gantry Drive and Carriage Drive. Also UV Lamps switch Off (Not UV Cooling Fans), and Z-Axis drive initializes (Carriage drives to Top Position and Holds there).
Carriage Interlock must be cycled to ensure the Interlock is functional and that the Carriage Safety Guard is in place. User interface message with user intervention acknowledgment is required to re-enable functioning.

Power-up Interlock Test for Carriage
On power-up, the Interlock System will not permit the motion motors to be turned, so the machine will be unable to initiate motion. To satisfy the requirements for Machinery Directive, the Carriage Interlock must be cycled to ensure the Interlock is functional and that the Carriage Safety Guard is in place. Upon cycling of Carriage Interlock, no motion may be initiated without acknowledgment of the Operator, i.e. User interface message with operator intervention acknowledgment.

Beacon Light Status

The green beacon light is mounted to the top surface of the printer carriage. The purpose of this light is to indicate basic printer status to the operator.
Beacon off: indicates the printer can be approached without caution. The machine cannot initiate movement since the interlock Safety System has disabled all motion to the electrical control system.
Beacon on: indicates the Machine is powered up and ready to initiate motion. This tells an operator to approach the machine with caution, because it could initiate motion at any moment.

Arizona 250 GT Safety Labels

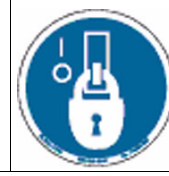
Introduction

The safety labels are placed at strategic locations on the printer to warn the operator of possible dangers and hazards. It is important to be aware of the meaning of these labels to ensure safe operation of the printer.

Caution: Read and understand all of the safety label descriptions in the table below before operating the printer.

Safety Labels

[11] Safety Labels (1 – 2)

Description	Label
Warning: UV Light Hazard. Avoid looking directly at UV lamps. Located on carriage cover to remind the operator that looking at the UV light source is dangerous.	
Wear Safety Gloves Located on the maintenance station as a reminder to always wear gloves when handling ink.	
Risk of Eye Injury. Wear Eye Protection - Located on the maintenance station as a reminder that the UV-curable ink is harmful to the eyes and skin. Always wear glasses and gloves when handling ink.	
Machine lockout: a reminder to turn off and lock out the AC power switch before servicing any electrical components. Located on the mains power switch.	

[11] Safety Labels (2 – 2)

Description	Label
Warning: Electric Shock Hazard Located on the door to the electronics enclosure, the UV lamp power supply cover, the carriage cover, and the vacuum pump enclosure. This area can only be accessed by a trained service technician.	
General Warning Located on the AC enclosure cover. This area can only be accessed by a trained service technician.	
Pinch Point A reminder that horizontal movement of the carriage can create a pinch hazard as it moves along the gantry. Located on both ends and the rear of the carriage.	
Crush Hazard: Keep hands clear while operating. A reminder that vertical movement of the carriage can be a crush hazard if hands or objects are placed in these locations. Located on the maintenance station and both ends of the gantry.	
Thermal Hazard Radiated heat from the UV lamps can cause burns. Located on the carriage near the two UV lamps.	

Safety Awareness

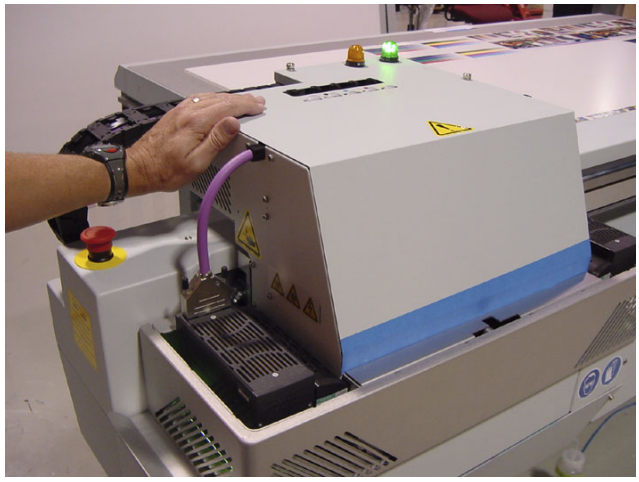
Introduction

This section contains two sets of principles that must be followed to assure maximum safety when operating the Arizona 250 GT printer. The first set uses negative examples to show you residual risks to avoid in order to prevent injury to the operator. The second set of principles illustrates some of the residual risks that are inherent in the operation of the printer. These are situations or physical aspects of the printer that may present a potential danger to the operator, but would compromise the capabilities of the printer if changed. Therefore, they are pointed out as a precaution the operator must be aware of when using the printer.

Attention: The photos in the following table illustrate residual risks that must be avoided when operating the Arizona 250 GT printer.

Situations and Actions to Avoid

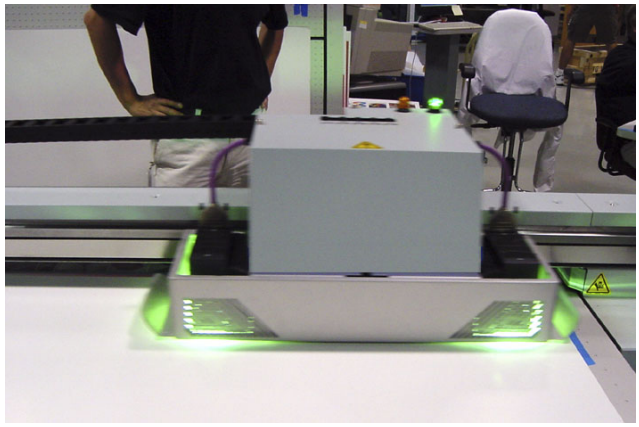
[12] How NOT to use the Arizona 250 GT (1 – 3)

Avoid these Situations For Your Personal Safety	
 [11] Keep the table clear	Do not place your hand in the carriage pathway when printer power is on. Do not leave any objects on the table printing surface, except for media that you will print on. Also make sure the media is 48 mm (1.89 inches) or less in thickness.
 [12] Avoid Carriage	Do not push or force the carriage to move manually. Always use the "Move Carriage" command in the Interface menu to move the carriage to the maintenance station if you need to access the area under the carriage.

[12] How NOT to use the Arizona 250 GT (2 – 3)

Avoid these Situations For Your Personal Safety	
 [13] Do not push gantry	Do not push or force the gantry to move manually. Use the "Move Gantry" command in the interface menu to move the gantry along the table surface.
 [14] Hot UV Lamps	When the Maintenance Station is open to clean heads, do not touch the UV lamp assembly as it can be hot. Also be aware that the carriage will move up or down when the Raise Carriage switch is pushed.

[12] How NOT to use the Arizona 250 GT (3 – 3)

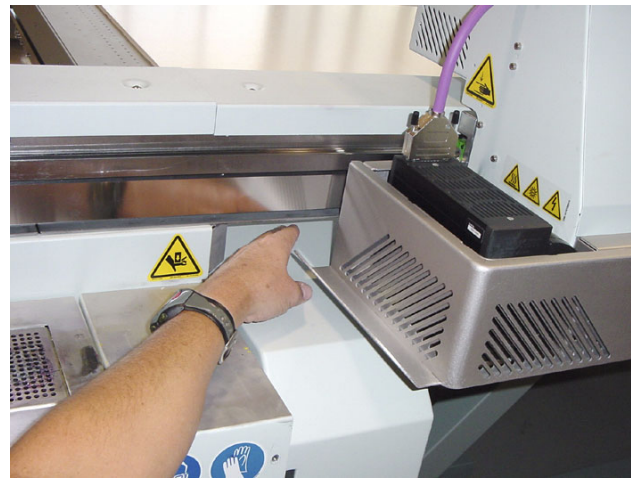
Avoid these Situations For Your Personal Safety	
 [15] IGUS Hazard	Avoid placing fingers, hands or other objects in the IGUS track unless power is off and the printer is locked out.
 [16] UV Lamp Hazard	Avoid looking at the UV lamps, especially if you are seated at the same level as the carriage. Also do not touch the UV lamp assembly or the surrounding guard as they will be hot and may result in burns of the skin.

Residual Safety Risks

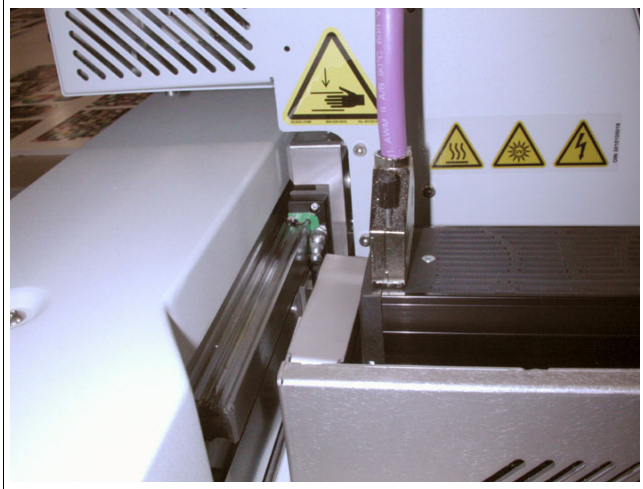
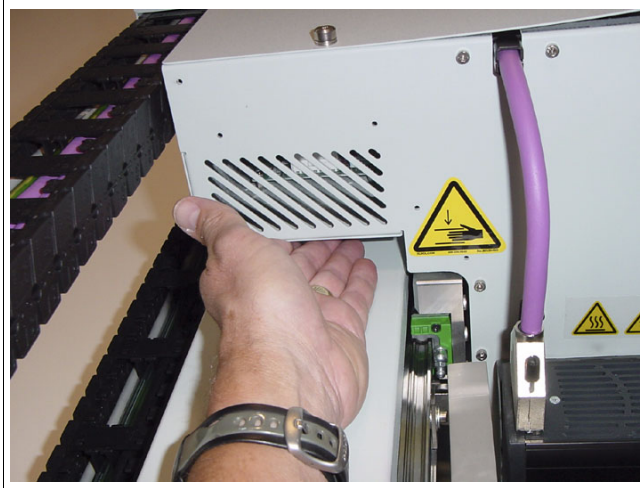
The Arizona 250 GT is engineered to minimize machine components and operating procedures that may compromise operator safety. However, in order to maintain some machine operations and functionality, certain compromises are required. The following table documents some of these residual hazards. By making the operator aware of the potential risks, we hope to ensure maximum safety in the operation of this printer.

Caution: there may be a time lag between when a print job is issued and when the gantry movement actually begins as the UV lamps must warm up first.

[13] Arizona 250 GT Residual Risks (1 – 6)

Risk Area	Crushing/Shear Hazard
A high risk crushing hazard is created by the movement of the carriage and gantry supports. Keep hands away from this area unless the printer power is off.	 [17] Carriage and Gantry Supports
A high risk crushing/pinch hazard is created by the table and the gantry.	[18] Table/Gantry Pinch hazard

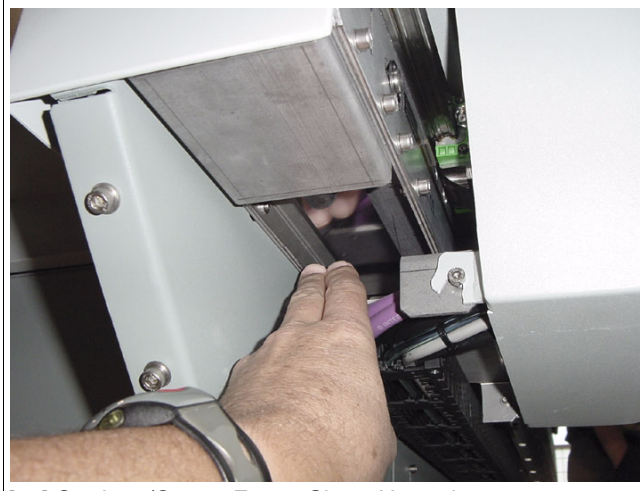
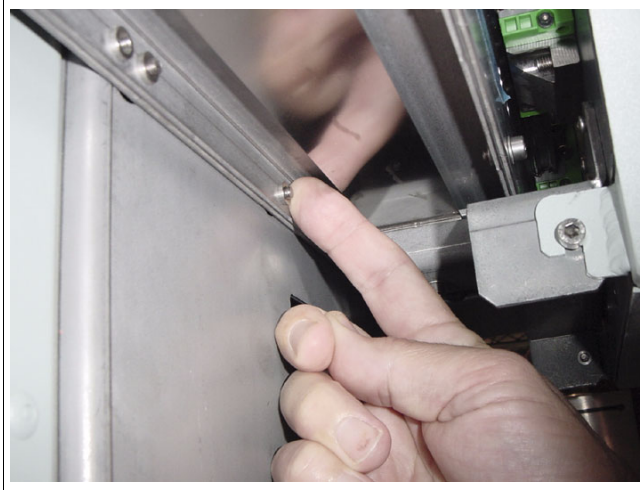
[13] Arizona 250 GT Residual Risks (2 – 6)

Risk Area	Crushing/Shear Hazard
A high risk crushing/pinch hazard is created by the table and the carriage.	 [19] Table/Carriage Pinch Hazard
A high risk crushing/pinch hazard is created by the carriage and the gantry when the Z-Axis is moving (carriage moves up or down).	 [20] Gantry/Carriage Crush Hazard

[13] Arizona 250 GT Residual Risks (3 – 6)

Risk Area	Crushing/Shear Hazard
A medium risk crushing/pinch hazard is created by the gantry and the table frame.	[21] Gantry/Table Pinch harard
A medium risk crushing/pinch hazard is created by the gantry and the table frame stop on the underside of the table at the electronics enclosure end.	[22] Gantry/Table Frame Crush Hazard

[13] Arizona 250 GT Residual Risks (4 – 6)

Risk Area	Crushing/Shear Hazard
Shearing hazard A high risk shearing hazard is created by the carriage and the gantry frame from the bottom.	 [23] Carriage/Gantry Frame Shear Hazard
A high risk shearing hazard is created by the carriage and the gantry frame from the bottom.	 [24] Hazard

[13] Arizona 250 GT Residual Risks (5 – 6)

Risk Area	Crushing/Shear Hazard
A high risk shearing hazard is created by the carriage and the gantry frame.	[25] Hazard
Entanglement hazard A medium risk of finger or material entanglement is created by the web assembly (IGUS track).	[26] IGUS Impact Hazard

[13] Arizona 250 GT Residual Risks (6 – 6)

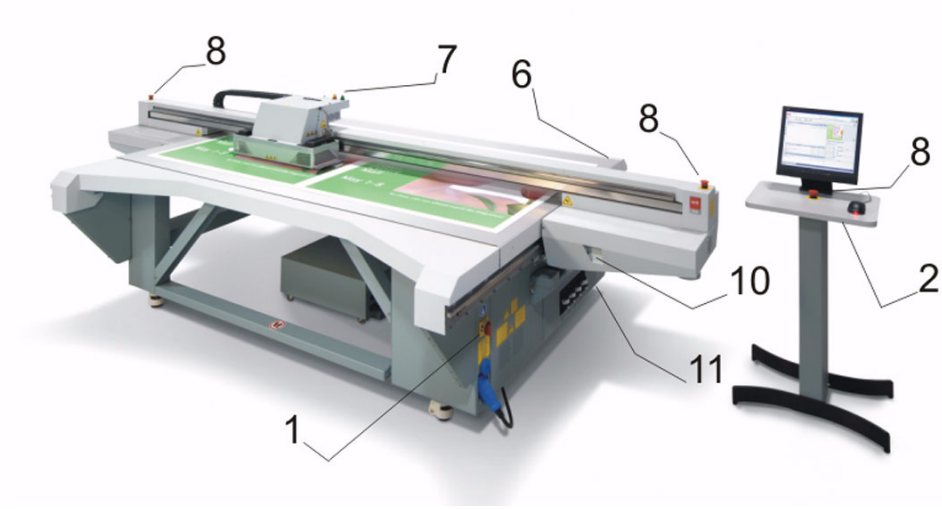
Risk Area	Crushing/Shear Hazard
A medium risk impact hazard is created by the carriage when cycling from left to right.	[27] Carriage Impact Hazard
Heat hazard: the UV lamp assembly and the surrounding guard can be hot.	[28] UV Lamp Heat Hazard

Chapter 4
How to Navigate the User Interface

Operator Interface Hardware

Introduction

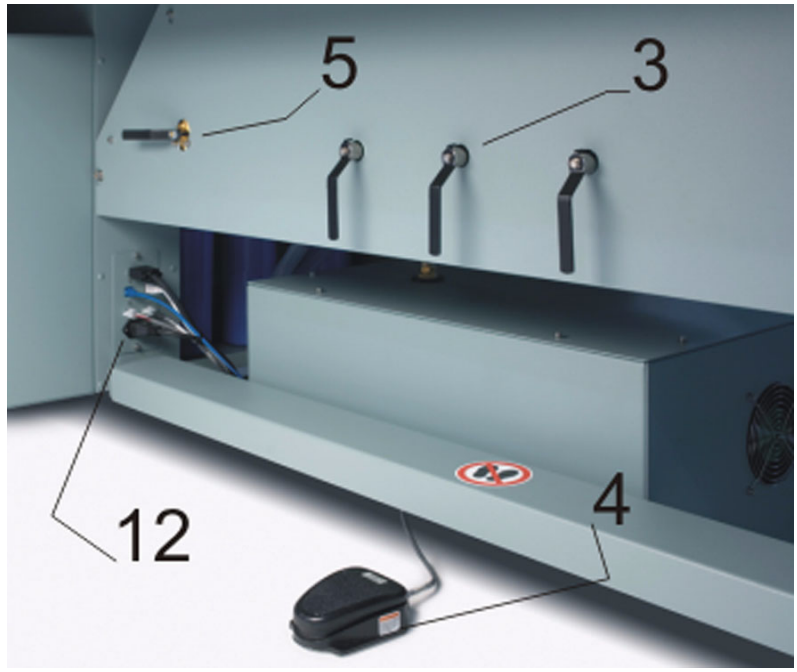
The Operator interacts with some of the printer components to operate, maintain, and monitor the state of the printer: This section identifies and explains the functions of these components.



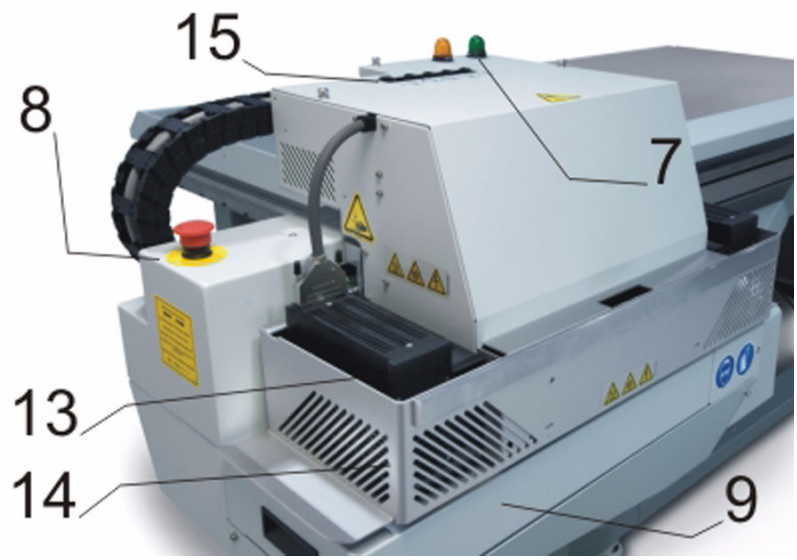
[29] User Interface Hardware

(1) Main Power Switch	(9) Maintenance Station
(2) Operator Control Station	(10) Coolant Reservoir Level
(3) Vacuum Zone Control Handles	(11) Ink Filters
(4) Vacuum Table Foot Pedal	(12) Control Station Panel
(5) Vacuum Bleed Valve	(13) UV Lamp Cartridges
(6) Print Button	(14) Carriage Guard
(7) Printer Status Light	(15) Vacuum Shut-off Valves
(8) Emergency Stops	

Illustration



[30] Vacuum System Hardware



[31] Carriage Area Hardware

Operator Interface Components

[15] Hardware Interface Components (1 – 3)

Component	Function
1) Main Power Switch	The Arizona 250 GT has an AC power switch that turns the printer On and Off. The switch also serves as a lock-out device. It also has an AC power connector. All of these power-related items are located on the end of the electronics enclosure.
2) Operator Control Station	The operator control station consists of a podium stand, an LCD display monitor, a mouse, and an emergency stop button. The station allows the operator to control the printer's onboard computer system by way of the Operator Interface software displayed on the LCD monitor. Print jobs are sent to the printer's hard drive from the host computer over an Ethernet network.
3) Vacuum Zone Control	The three vacuum zone control handles determine which of the three print zones on the printer table will have vacuum applied when the vacuum pump is switched on. The vacuum zones are opened or closed by the handles.
4) Vacuum Table Foot Pedal	A vacuum foot pedal switch is provided to facilitate the process of securing the media on the vacuum table. The foot pedal toggles the table vacuum on/off. The vacuum must be turned on prior to starting a print.
5) Vacuum Bleed Valve & Gague	A bleed valve can be adjusted to reduce or increase the amount of vacuum suction on the media. Less vacuum reduces artifacts caused by suction when imaging on flexible media.
6) Print Button	The print button is located at the corner where media is loaded on the table. After positioning the media and activating the vacuum, press the button to start the print.
7) Printer Status Light	The green colored beacon light is mounted on the top surface of the carriage. The purpose of the light is to indicate basic machine status to the operator. See the table after this section for the significance of the different states of the light.

[15] Hardware Interface Components (2 – 3)

Component	Function
8) Emergency Stops	If a situation requires an immediate shutdown of all printer activity, press one of the three Emergency Stop buttons. To recover from an emergency shutdown, resolve the problem that prompted the shutdown and then release the Emergency Stop by twisting it slightly clockwise. Restoring functionality to all disabled systems can only occur through an operator command at the Control Station. See below for the parts of the hardware interface affected by an Emergency Stop.
9) Maintenance Station	Daily printhead maintenance consists of an ink purge and suction cleaning of the printheads. The maintenance station cover is slid open to access the printheads and the suction nozzle. The maintenance station is located under the carriage. Maintenance is performed when the carriage is parked at the end of the gantry.
10) Coolant Reservoir	The coolant reservoir is mounted at the service access end of the gantry. The operator has the ability to refill the reservoir and to monitor the level of coolant at this location. See Maintenance section for instructions.
11) Ink Filters and Ink Bay	The ink filters ensure that ink flows easily and is free of particulate matter. These filters must be changed periodically to ensure that they are working efficiently. See the Maintenance section, How to Change Ink Filters for a schedule and instructions. The Ink Bay contains 2 liter bags of each color (CMYK) of ink. The ink bay is located under the table in the corner where media is loaded. ID tags ensure the correct ink color is installed in the correct location and that expired ink is not installed. A warning is issued to the operator when a specific ink bag is empty and needs to be replaced.
12) Control Station Panel	This panel contains all of the receptacles for connections from the printer to the Operator Control Station. This includes power and video for the LCD display, an Ethernet network cable plug for communication and data transfer from the host computer, a cable to the Emergency stop and a USB cable for the mouse on the Control Station.
(13) UV Lamps	Two UV lamp are housed in cartridges to cure the ink. UV amps have a finite life and must be changed periodically.

[15] Hardware Interface Components (3 – 3)

Component	Function
(14) Carriage Guard	The Carriage Guard protects the Operator from exposure to UV light and it also protects the lamps and the carriage by stopping all motion if it encounters an obstacle in the path of the carriage.
(15) Vacuum Shut-off Valves	On top of the carriage are vacuum shut-off valves can be shut off to avoid ink drips when the printer is turned off. They also allow longer purges to select printheads (those not shut off).
(16) Waste Tray	The waste ink tray is located below the printhead maintenance station. A manual valve allows the operator to drain the waste ink to a portable container for disposal .

Status of Beacon Light States

The status light indicates the following printer status to the operator.

[16] Status Light

Beacon Status Light	Definition	Possible Conditions
Green Off	Printer interlock system or the emergency stop buttons have been triggered. No motion can be initiated.	Maintenance station door has been opened or one the emergency stop buttons has been triggered.
Green On	Printer is functional and ready to initiate motion.	

Emergency Stop Effects

Note: *There are three Emergency Stop buttons, one on the control station podium and one on each end of the gantry. The AC power On/Off switch can also function as an emergency stop. There are more details on the Emergency stops in the Interlock section (see 'Interlock Safety System' on page 25).*

Activating an Emergency Stop will disable the following:

- Carriage motion
- Gantry motion
- UV curing lamps
- Ink pumps
- Thermal fluid (coolant) pump

- Thermal fluid heater
- Purge pump
- Purge valve
- Printheads jetting

Operator Interface Software

Introduction

The Arizona 250 GT Operator Interface Software (OIS) is displayed on the LCD monitor that is part of the Operator Control Station. The interface has five main working modules that are accessed by tabs located at the bottom of the display. Click on these tabs with the mouse to access the modules. Print Job Control is the default module displayed when the printer is switched on.

The display is divided into functional and status areas. The functional areas supports all operator input necessary to operate, maintain and service the printer. The status areas are used to report printer status.

Onscreen Keyboard & Numeric Keypad
A mouse is used as the input device. For operations that require operator input, the mouse is used to select numeric characters from a virtual keypad displayed on the interface LCD monitor.

Illustration

[32] Operator Interface Tabs

Operator Interface Module Tabs

[17] Interface Modules (1 – 2)

Component	Function
Print Job Control (Print tab)	Provides management of all aspects of working with print jobs and also controls some features of the printer.
Printer Setup (Setup tab)	Displays information about network connection settings, sets how units are displayed, set the language preference, set the date and time, and sets image quality.
Service and Diagnostics	This area is reserved for use by trained field service technicians only.

[17] Interface Modules (2 – 2)

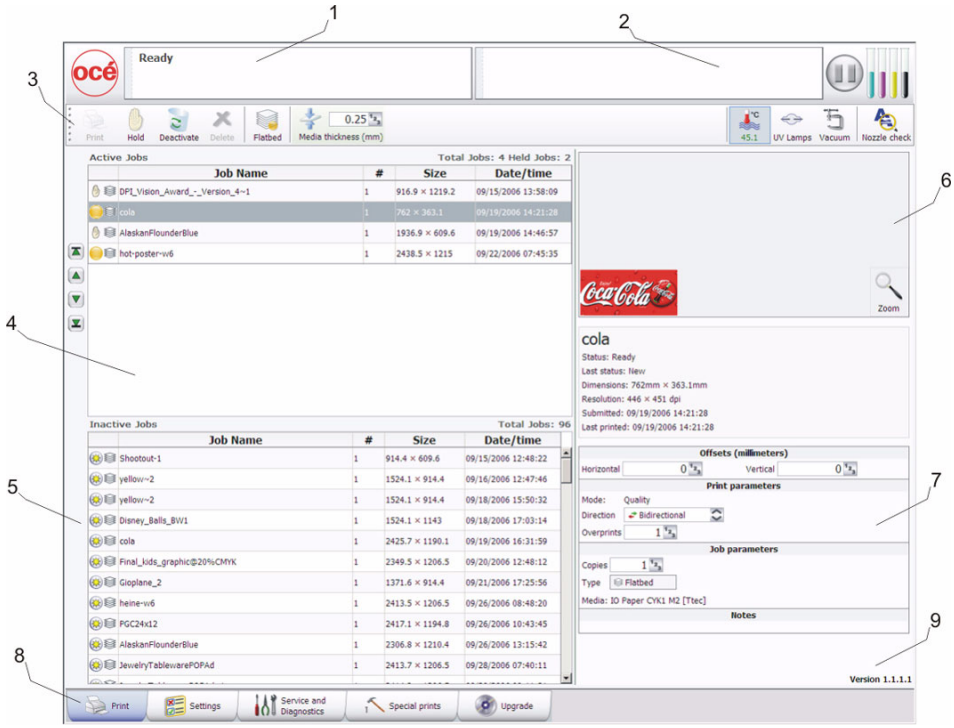
Component	Function
Special Prints (Special Prints tab)	Provides access to the special adjustment prints, the Quality Control Reference print image and the Nozzle Check print.
Software Upgrade (Upgrade tab)	Provides access to the latest version of the Operator Interface software and firmware.

Print Job Control Module

Introduction

Print Job Control is the default module displayed when the printer is switched on. From this module you can manage all aspects of working with print jobs and also control many features of the printer. The table "Job Control Panels" documents the number callouts and the rest of this section explains each area in more detail.

Illustration



[33] Print Job Control Module

Components of the Print Job Control Module

[18] Job Control Panels

Component	Function
1) Job Status Panel	Displays the status and progress of print jobs
2) Printer Status Panel	Displays the last four lines of the log file - click to see more of the log. To the right is the Pause/Resume button and the Ink level indicators.
3) Command Toolbar	Displays icons for actions related to the print jobs and control of the printer
4) Active Jobs List	Displays a list of all Active print jobs
5) Inactive Jobs	Displays a list of all Inactive print jobs
6) Table Placement Preview	Displays a preview that shows the placement of the current job on the printer
7) Job Information and Parameters panel.	This panel shows the parameters of the currently selected print job and also allows changes to the parameters associated with that job
8) Printer Module Tabs	These tabs allow the operator to switch between different functional modules of the printer
9) Software Version Number	Displays the current installed version of the printer software.
10) Image Upload Progress	The image upload progress panel indicates the name of a print job that is currently uploading to the printer. This panel is not always visible and appears only when an image is loading to the printer. It is located below the software version number when it is active.

Job Control Components Explained

1) Job Status Panel

The job status panel is in the top left corner of the display screen. It shows information about the current state of the printer or job activities.

- Printer Status
- Job name currently printing
- Total copies, number of printed copies and copy progress
- Overprint progress of number if overprints is more than zero

All incoming jobs go directly into the active session at the end of the job list. Selecting a job in the list highlights the job and updates the job information area.

The job information area contains offsets, print quality mode information, number of copies and overprints, and the name of the ProductionHouse profile used and the image to be printed is also displayed.
Jobs can be moved up or down in the list and can either be printed, held or canceled.

2) Printer Status Panel

The printer status panel is in the top right corner of the display. It shows the last four lines of the printer log that contains printer status information and error messages. To see more of the log file, click on the panel.
To the right of the status panel are two buttons:
Pause/Resume print button. This button can be used to pause or resume on when a job is printing.

Ink Level Indicators. Click the icon to open an ink subsystem status dialog that displays ink-related information.

3) Command Toolbar
The printer toolbar contains icons that allow you to interact with the printer (listed here in displayed order). Note that the buttons have a checked and unchecked state.

[34] Command Toolbar

Print job	This command can do the following actions depending on context: ■ Activates a selected inactive job by moving it to the active list. ■ Un-holds a held job. ■ Un-holds an job that had an error currently.
Hold job	The command can do following actions depending on context: ■ Puts an active job on hold. ■ Waits until the printer finishes a currently printing copy and puts the job on hold.
Cancel job	The command can do following actions depending on context: ■ Deactivates a selected active job by moving it to the inactive list. ■ Cancels a currently printing job.
Delete job	Deletes a job from the printer. Only an Inactive job can be deleted. In order to delete an Active job, the job has to be deactivated first using Cancel command.
Flatbed	Process flatbed jobs toggle command - Allows printer to process flatbed jobs. This must be selected to enable flatbed printing whe the printer is booted or after re-setting the printer due to an error. Note: Other job types will be added at a later date.
Media Thickness	Enter or confirm the thickness of the media. The printer will automatically adjust the carriage height to media thickness and also the print gap. Media thickness confirmation is required only for the first copy of a print job, unless it is changed during printing. If the media thickness value is changed while printing, confirmation is requested before printing the next copy.
Lamp Power Control	Allows the operator to control the power output of both UV lamps. To extend lamp life, use the lowest setting that provides adequate curing for a particular media.
Ink Temperature Control	This button controls the ink heater and also displays the ink temperature. The state of the button reflects the status of the ink heater. The heater times out after two hours of inactivity (time can be changed up to four hours by a service technician). If the ink heater is turned off when timeout expired, then the button changes its status to unchecked. The print heads must be at operating temperature (47°C - 116°F) before a job will start printing.

UV Curing Lamp Control Button	This button controls the UV curing lamps. The state of the button reflects the state of the lamps. The UV lamps will timeout after 15 minutes of inactivity (time can be changed by a service technician). If lamps are extinguished when the timeout expired, then the button change its status to unchecked. If lamps are off before the print starts, then lamps are turned on automatically and the button would reflect the state accordingly.
Table vacuum button	This button controls the table vacuum and duplicates the function of the table vacuum footswitch. The button reflects the actual state of the table vacuum. Note: Once turned off, vacuum cannot be turned on again for approximately 5 seconds.
Nozzle check	This button populates the active job list with a job that prints a nozzle check pattern. The nozzle check print is used to identify nozzle dropouts that can cause banding and other print quality problems [See (see *'Print a Nozzle Check' on page 121*)] .

4) Active Print Job List

The active job list consists of a table, job count summary on top and job order control buttons on the left. A job count summary displays total number of active jobs and number of jobs put on hold. Job order control buttons can be used to change order of jobs enqueued for printing. The active job list has the following features:

- All incoming jobs printed using the ONYX workflow go directly into the active job list.
- After a job is printed it automatically moves from the active to the inactive job list.
- The operator can drag and drop jobs to move them between the active and inactive job lists (except for a job that is being prepared to print).
- All the jobs are stored locally on the printer hard drive. Print jobs can be sorted by selecting the labels at the top of each column in the list.
- Selecting a job highlights the job and updates the job information area.
- Jobs can be moved up/down in the active list and can either be printed, held or deleted. Jobs deleted from the active list are moved to the inactive list.
- The current job being printed can be paused or canceled. A canceled job will move from the active to the inactive print job list.
- A job count summary displays the total number of active and inactive jobs and the number of active jobs on hold.

5) Inactive Print Job List

Inactive job list consists of a table and job count summary on top. A job count summary displays total number of inactive jobs. The list can be sorted by clicking on the appropriate column header. First column reflecting the job status is sorted by job status only. The size column is sorted by image area. Date column is sorted by a compound value of date and time. The inactive job list has the following features:

- The operator can drag and drop jobs to move them between the active and inactive job lists.
- Jobs deleted from the inactive list are deleted from the hard drive.

6) Table Placement Preview
The table placement preview shows the print location and a proportional representation of the image in relation to the table. The zoom button in the bottom right corner activates a popup preview window. If a preview image is not available, an approximately sized gray box is used as a placeholder

7) Job information and parameters panel
The job information area displays job parameters of the current print job. Some of the parameters may be modified.

Offsets	A job's vertical and horizontal offset parameters can be changed with the mouse wheel when mouse cursor is positioned over the field. Rotating the mouse wheel up or down increments or decrements offset at the rate of one unit per notch. Holding right mouse button and rotating the wheel increments or decrements at the rate of 10 units per notch.
Print Parameters	Displays information about the print job that is currently selected: ■ **Print quality mode** - Production, Quality, or Fine Art mode. Note that when Quality mode is set in ProductionHouse, this field will have a pull-down box that allows you to select Quality-Matte. Select this to provide a matte finish to the entire image. This is needed on some media such as FomeCore, GatorPlast or Styrene as a glossy image tends to have a matte line at the end of each swath with these media. Quality-Matte resolves this issue. ■ **Direction** - Bidirectional or Forward or Reverse unidirectional printing ■ **Overprints** - If the Overprint count is set to greater than 0 (zero), the printer will re-print the image again on the same piece of media. ■ **Copies** ■ **Print Method** - Flatbed ■ **ProductionHouse Media used** ■ **Notes** - Appears only if a note was specified for the job. Notes are entered in ONYX ProductionHouse.
Job Parameters	■ **Copies** - use the mouse to increase or decrease, as required ■ **Type** - currently only Flatbed type is available. ■ **Media used** - displays the type of media.
Notes	Appears only if a note was specified for the job. Notes are entered in ONYX ProductionHouse.

8) Printer Module Tabs
These tabs allow you to switch between different functional modules of the printer. Click on a tab to display the screen associated with each of the modules available.

9) Software Version Number
Displays the version of the currently installed printer software.

10) Image Upload Progress

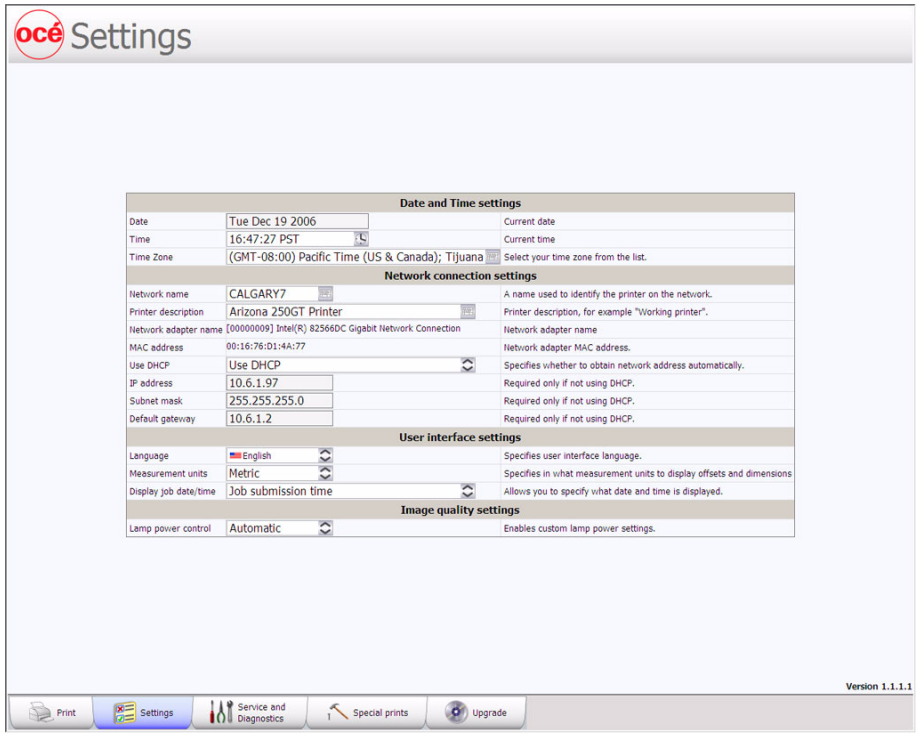
The image upload progress panel indicates the name of a job that is currently uploading to the printer. This panel only displays information when an image is uploading from the ProductionHouse computer.

Printer Setup Module

Introduction

The Printer Setup Module allows the operator to look at the network connection settings, configure how units are displayed, set the language preference, set the date and time, and set image quality settings.

Illustration



[35] Printer Setup

Date and Time Settings

- Date - display only, cannot change the date.
- Time - change the time of day, if required.
- Time Zone - select the time zone for the printer location.

Network Connection Settings

Note: *Typcally, DHCP is used to automatically obtain network settings. If "Use DHCP" is selected, the only thing you might want to change is the network name of*

the printer. The settings are displayed to troubleshoot possible network connection problems. One situation that would require changes is if your network does not use DHCP to automatically obtain network settings. In this case network settings have to be entered manually. If you don't know how to do this, bring in a network consultant to determine what the setting must be for the network (alternately, you can purchase a DHCP router for your network that will automatically supply the network settings).

- Network Name
- Printer Description
- Network Adapter Name
- MAC Address
- Use DHCP
- IP Address
- Subnet Mask
- Default Gateway

User Interface Settings

Languages Supported
The user interface can be set to display the following languages:

- English - US
- English - UK
- German
- French
- Dutch
- Japanese
- Italian
- Spanish

Measurement Units
Allows you to specify how to display offsets and dimensions units:

- Metric
- Imperial

Special Prints Module

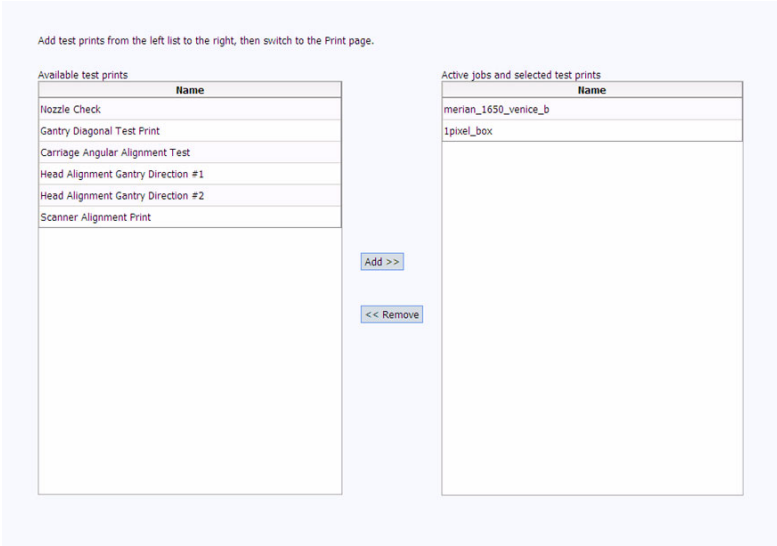
Introduction

The Special Prints module consist of two lists.

The list on the left displays available special test prints. Most of these prints are used by service technicians to adjust and troubleshoot the printer. The one that is of interest to the Operator is the Nozzle Check (see *'Print a Nozzle Check' on page 121*). The Nozzle Check is used to determine if there are any clogged nozzles that can affect print quality (note that it is also available on the command toolbar in the Print Job Control module).

The list on the right shows all active jobs that are currently in the print queue. If you remove a job from this list, it is also removed from the active job list.

Illustration



[36] Special Prints Module

How to Load a Special Print

1) Click to select a test print in the left window
2) Click the Add button to place it in the print queue on the right.
The test print is now available in the Active job list.

How to Print a Special Print

Go to the Print Job Control module to actually print the test print. It will appear in the active job list and is printed like any other print job.

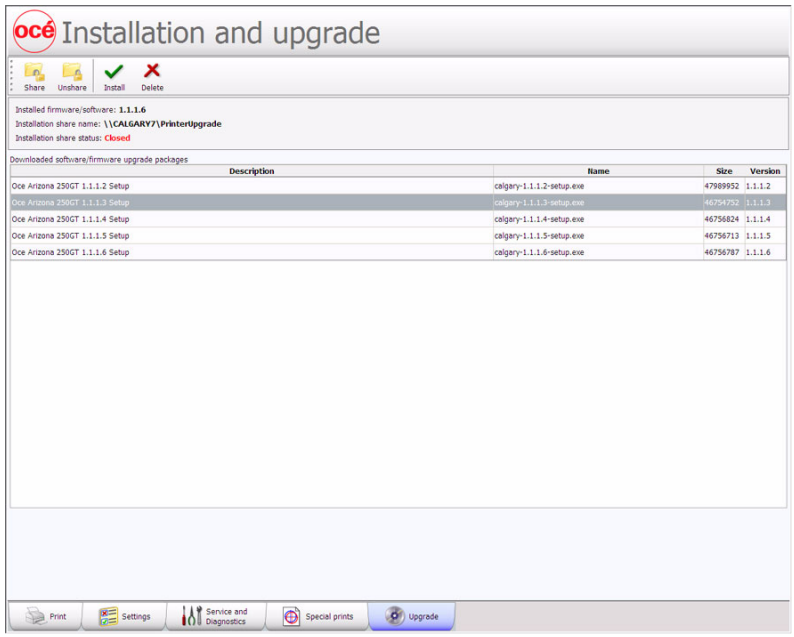
Note: *Refer to the sections that document the two special prints for details on printing. For example, the Nozzle check is printed on I/O paper, while the Ruler Print is printed directly on the table.*

Installation and Upgrade Module

Introduction

As we are committed to improve and refine the quality and functionality of the Arizona 250 GT printer, there will be periodic upgrades to the underlying firmware and printer software. Software updates are available only to customers with a service contract. Your local service representative will either install the upgrade or provide you with the upgrade file in some circumstances.

Illustration



[37] Printer Upgrade Module

How to Upgrade the Firmware and Software

Your dealer or service representative will advise you when an upgrade of the printer software is necessary. If they request that you install the upgrade, instructions will be provided with the upgrade file.

Chapter 5
How to Operate the Arizona 250 GT

Training Requirements

Introduction

The operator must receive training for safety, printer operation, and ProductionHouse® software prior to operating the Arizona 250 GT printer.

Safety Training

Before operating the Arizona 250 GT printer, make sure you have read and understood all of Chapter 3 "Safety Guidelines".

Océ Operator Training

For optimal safety and print quality, all Arizona 250 GT printer operators must have received training by qualified Océ service personnel. Océ training provides a general orientation to printer safety and operating procedures. This User Manual is not a substitute for official training.

Onyx ProductionHouse Training

Maximum performance from the Arizona 250 GT printer requires a properly trained operator. Océ trains the operator in the use of the printer hardware and software at installation. However, this is not a substitute for formal ProductionHouse® training. Operators of the Arizona 250 GT should be fully versed in the operation of Onyx ProductionHouse® . For any operator unfamiliar with its operation, Onyx ProductionHouse® training is required. Training courses are available; contact your local representative for an Onyx-certified training program.

Note: *PosterShop is not capable of producing profiles for color management with the Arizona 250 GT and also does not have the layout editor capabilities of ProductionHouse. Also, if you use PosterShop the Arizona 250 GT printer driver must be purchased (it is included at no cost with ProductionHouse). Therefore we recommend that customers not use PosterShop with this printer.*

How to Switch the Printer On and Off

Introduction

This section describes how to switch the printer On and Off. When the printer is switched On, the Arizona 250 GT software is displayed on the LCD flat panel monitor. The monitor is located on the Operator Control Station. From there the operator can access and control the printer (see '*Operator Interface Software' on page 46*). When the printer is switched Off for long periods, there are things to consider that are documented in this section.

Before you begin

Before you apply AC power to the printer, make sure that loose objects such as clothing, tools and cleaning materials are not interfering with the printer mechanisms. Position the power cord so that it does not pose a hazard when walking around or moving media or other objects near the printer. The Arizona 250 GT has an AC power switch that turns the printer On or Off. The switch also functions as an AC power lock-out switch. It is located at the Power end of the printer.

Caution: THE SOCKET OUTLET MUST BE INSTALLED NEAR THE EQUIPMENT AND BE EASILY ACCESSIBLE. Ensure that you follow the guidelines in the Arizona 250 GT Site Preparation Guide before plugging the printer AC power plug into the socket.

Attention: Unplug the blue power cord from the printer to completely isolate the electronics of the printer, especially when you move or service the printer.

How to Power ON

1. Ensure that the blue AC power plug is properly seated; and
2. Turn on the AC power On/Off switch.

[38] AC Power Switch

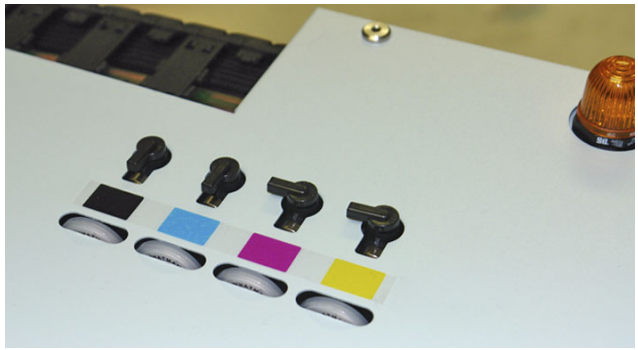
3. If it is not already on, turn on the power of the Control Station LCD display. During the boot-up procedure, the printer operating system is loaded and the User Interface software is automatically started. The software displays a splash screen followed by the initial Job Control module screen. The initialization is complete when the top left panel of the display shows "Ready".

Attention: After powering the printer On, leave it running continuously, even when at idle. Failure to leave the printer powered on may result in ink draining out of the ink reservoirs.

How to Power Off

1. Turn the AC power switch to the OFF position.

2. Close the vacuum shut-off valves on top of the Carriage ink reservoir to prevent the ink from draining out and filling the waste tray.



[39] Vacuum Shutoff Valves (Magenta, Yellow are Off - Black, Cyan still ON)

3. Open the vacuum shutoff valves again when the power is turned back on.

Note: *Extended Power Off*
If the power is switched off for only a short period (for example, when the printer is shut down and then immediately restarted to correct an electrical problem), it is not necessary close the ink valves. However, if it is necessary to turn off the power for an extended period, then close all of the ink valves to prevent the ink from draining. Also if the printer is powered off for more than one day, perform a Printhead Maintenance and Swab the heads before power is turned off.

How to Lock Out the Power Switch

Attention: Some simple maintenance and service procedures require locking out the On/Off switch to ensure operator safety. When the switch is locked out, it is impossible to supply power to the printer.

1. Turn the AC power switch to the Off position.
2. Apply a lock and a tag-out label to the Lock-out area of the switch for the duration of any service or maintenance procedures.
3. Close the shutoff valves on top of the Carriage ink reservoir to prevent the ink from draining into the maintenance Station.
4. Open the shutoff valves again when the power is turned back on.
5. When maintenance or service is complete, remove the lock and tag-out label and turn the AC power switch to the On position.

Illustration

[40] AC Power Switch and Lockout

How to Use the Disconnect Device

Attention: The AC power switch is the main disconnect device for the printer. For maximum safety, if the printer is moved, the blue AC power plug must first be unplugged from the printer.

1. Follow the Lock-out procedure above.
2. For additional safety, also disconnect the blue power plug.
3. When the printer is successfully moved or the repair work is complete, re-connect the power plug and unlock the AC power switch.

How to Install the Onyx Printer Driver

Introduction

This section explains how to install and configure the Onyx ProductionHouse Arizona 250 GT printer installation file.

Purpose

The printer installation file configures the Onyx software so that it knows how to communicate with the Arizona 250 GT. This prepares the printer so that the operator can manage print jobs.

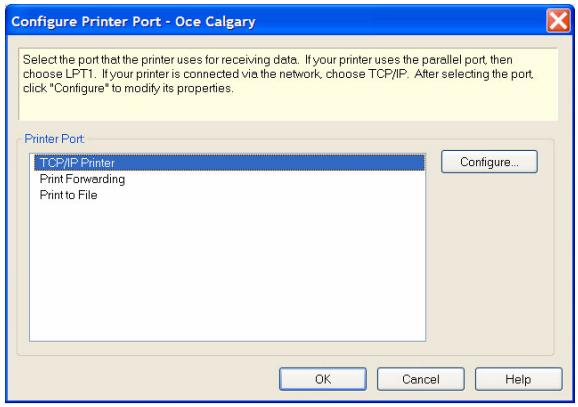
Before you begin

Make sure that the Onyx ProductionHouse application software is installed before you install the printer driver.

Note: *The Onyx Printer Installation Driver File can be installed as the final step in the installation of the Onyx ProductionHouse software application or it can be downloaded separately and installed later. However, it must be available for the software to communicate with the printer.*

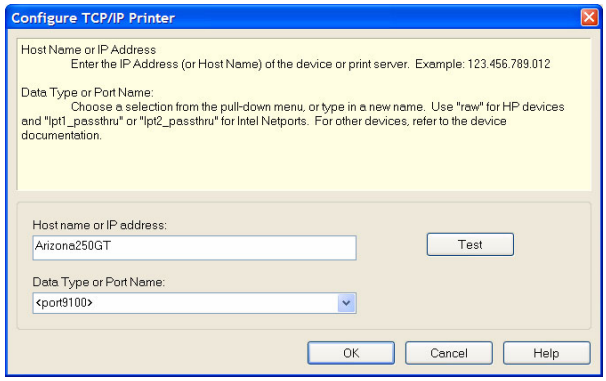
Installation Procedure

1. Power on the printer.
2. Select the Setup tab in the printer software to access the printer's network name.
3. Verify that there is an Ethernet network connection between the ProductionHouse computer and the printer. To do this click on the Windows Start button the select My Computer, My Network Places and ensure that the network name for the Arizona 250 GT is on the list.
4. Install the Arizona 250 GT Printer Installation File on the ProductionHouse computer (if you have not already done this during the installation of the ProductionHouse software). To install, click Start, All Programs, then ProductionHouse and select Add Printer.
5. Select the media to be installed and continue with the installation.
6. After the printer driver is installed the Configure Printer Port window will launch automatically. Select **TCP/IP Printer** then click on **Configure**.


Configure Printer Port - Oce Calgary
Select the port that the printer uses for receiving data. If your printer uses the parallel port, then choose LPT1. If your printer is connected via the network, choose TCP/IP. After selecting the port, click "Configure" to modify its properties.
Printer Port:
TCP/IP Printer
Print Forwarding
Print to File
Configure...
OK
Cancel
Help

[41] Configure Printer Port

7. Enter the Network name of the printer (as displayed in Step 3) and make sure <Port 9100> is selected for the port.


Configure TCP/IP Printer
Host Name or IP Address
Enter the IP Address (or Host Name) of the device or print server. Example: 123.456.789.012
Data Type or Port Name:
Choose a selection from the pull-down menu, or type in a new name. Use "raw" for HP devices and "lpt1_passthru" or "lpt2_passthru" for Intel Netports. For other devices, refer to the device documentation.
Host name or IP address:
Arizona250GT
Test
Data Type or Port Name:
<port9100>
OK
Cancel
Help

[42] Configure Printer Host Name

Note: *If you have more than one Arizona 250 GT printer, each printer must have a unique network name. The network name can be changed in the Settings module of the printer User Interface.*

Check Configuration

Click on Test to verify that the computer and printer are in communication.
If the Test was successful, a verification message is displayed to indicate a Valid IP address was found.

Correction

1. If no valid IP address is found, check that the network name of the printer is correct and that port 9100 was selected.
2. Run the Test again.

Result

When a Valid IP address for the printer is verified, click on OK to complete the configuration of the communication link between ProductionHouse and the Arizona 250 GT printer.

How to Manage Print Jobs

Daily Start-up and Shut-down

Introduction

Keep your printer clean and perform all recommended scheduled maintenance to ensure that the printer is ready to produce optimal quality images.

When to do

The start-up procedure must be performed every morning or after a period of time when the printer has not been used. The shut-down procedure indicated here is for the end of a regular workday. If the printer is shut down for longer periods of time than a few days, then there are more considerations, as documented in the previous section on How to Switch the Printer Off (see the note on Extended Power Off).

Before you begin

Review the sections on hardware and software interface if you are not familiar with the Command Toolbar and other components mentioned in this section.

Note: *Make sure the ink is up to temperature before you perform Printhead Maintenance.*

Start-up Procedure

1. Turn on the Ink Heater (click on the Ink Temperature Control icon located on the Command Toolbar of the Job Control screen).
2. Clean the carriage underside ((see '*Clean Carriage Underside' on page 108*)
3. Perform Printhead Maintenance (see '*Printhead Maintenance' on page 100*) after the ink temperature has reached at least 40° Centigrade.

Shut-down Procedure

1. Turn off the UV lamps (click on the lamp icon located on the Command Toolbar of the Job Control screen).
2. Turn off the table vacuum.
3. If it is the end of the work week, swab the printheads ((see '*Swab Printheads' on page 105*)
4. Turn off the ink heater (click on the Ink Temperature Control icon located on the Command Toolbar of the Job Control screen).

How to Set Up a Print Job

Introduction

This section explains how to select an image to print on the Arizona 250 GT. The basic steps are outlined here and explained below. More detailed explanations for some of these steps are available (see *'Print Job Control Module' on page 48*).

- Prepare A Digital Image Using Onyx ProductionHouse
- Print The Job From Onyx ProductionHouse To The Arizona 250 GT Printer
- Perform Printhead Maintenance (If First Print Of The Day)
- Select Job To Be Printed and Check Print Parameters
- Measure Media Thickness
- Select Print Icon, select Print Mode, and Confirm Media Thickness
- Prepare Media for Printing
  Place And Register Media On The Printer Vacuum Table
  Select Active Print Zones
  Mask Active Vacuum Zones Not Covered With Media
  Turn On Table Vacuum
  Adjust Bleed Valve, If Required
  Clean Media, If Required
- Check the table to make sure that there are no obstacles that can interfere with the travel of the gantry or carriage
  Start the Print

Prepare a Digital Image with ProductionHouse

Operator must be trained to use ProductionHouse, (documentation and training provided by Onyx).

Print The Job From Onyx ProductionHouse

When the job is sent from ProductionHouse, the job transmission progress is indicated in the lower right corner of the User Interface display. After the transmission has completed it will appear in the list of Active print jobs in the Job Control Module.

Perform Printhead Maintenance (if this is the first print of the day)

Refer to the Maintenance section in this manual for details (see *'Printhead Maintenance' on page 100*). This must be done at the beginning of the work day or when image quality such as banding appears.

Measure Media Thickness

Use a digital slide caliper or micrometer to accurately measure the media thickness of the media. An error in measurement of media thickness will affect bi-directional alignment and can contribute to the amount of graininess in the printed image or cause a carriage/printhead crash with the media.

Set the Printer to Flatbed

Select the Flatbed button on the toolbar to prepare the printer. This is required only when the printer is initially started, or if it is reset due to an error condition.

Select Job To Be Printed, Check Print Parameters And Verify Media Thickness

Click on the job to be printed from the active job list to select it. After it is selected the parameters on the job information and parameters panel will be displayed and may be modified if desired. Refer to the section Graphical User Interface Display for details on what is displayed and how to modify the job information.

Select Print Icon, Print Mode, and Confirm Media Thickness

When you select the Print toolbar icon it will gray-out the icon and the hand icon to the left of the job to be printed will turn green.
When printing Flatbed mode and Flatbed icon on the command toolbar is not selected, select it. Similarly, if printing in roll mode and the Roll icon is not selected select it.
The print job's icon should change to red/orange, and also the Pause icon and Confirm thickness buttons should appear in the command toolbar right beside Media thickness field.
Enter the measured media thickness value in indicated measurement units.
Select the 'Confirm thickness' button.

Prepare Media for Printing

Place And Register Media On The Printer Vacuum Table
Place the media on the table in the orientation that matches the job to printed and register the media to the print origin. In the next section there are more details on how to perform the following actions (see '*The Media Vacuum System' on page 74*).

Select Active Vacuum Zones
Select the required vacuum zones to hold the media to the table using the table vacuum. The three vacuum zone control handles control which of the three zones on the printer table will have vacuum applied when the table vacuum pump is turned on. The vacuum zones are opened or closed using a quarter turn handle. Refer to the next section for details on the dimensions and placement of the vacuum zones (see '*How to Create Custom Vacuum Zones' on page 77*).

Mask Active Vacuum Zones Not Covered With Media

To hold the media to the table it is important to completely cover active vacuum zones with either the media to be printed on, or a masking material. The masking material should not be thicker than the media to be printed on. If a full bleed image is to be printed, the masking material should be the same thickness as the media to be printed on to prevent overspray from accumulating on the print head nozzle plates.

Turn On Table Vacuum

Click on the Vacuum button in the top right corner of the UI display to activate the table vacuum. Also a vacuum foot pedal switch is provided to help secure the media on the table vacuum. Step on the foot pedal to toggle the table vacuum on or off.

Note: *When the vacuum is switched off, wait a few seconds before you switch it on again.*

Adjust Vacuum Bleed Valve, If Required

A bleed valve can be adjusted to reduce or increase the amount of vacuum suction on the media. Less suction reduces artifacts caused by the suction when imaging on flexible media. In most cases when printing on rigid material, full vacuum suction is desired.

Clean Media, If Required

If the media is dusty or dirty, clean it with an appropriate cleaner. If using a liquid like isopropyl alcohol, allow sufficient time to dry prior to imaging.

Start Print

The Print button is located at the corner of the table where media is loaded. Press the Print button to start the print job. If the job was selected, the media thickness confirmed and the vacuum is turned on, printing will start after the ink and lamps reach operating temperature.

Note: *When the ink is at a low room temperature it may take up to 20 minutes for it to warm up to operating temperature. The printer will not print until the ink warms up. Also, when the printer is idle it will maintain the ink at operating temperature for two hours.*

Note: *The image is printed towards the print origin instead of away from it (i.e., the last data line to be printed is the line at the print origin). The reason the image is printed in this direction is to allow the gantry to lead the image in the print direction so it does not block the image when it starts printing. Also it reduces the time it takes for the gantry to start the print.*

How to Manage the Media Vacuum

The Media Vacuum System

Introduction

The Arizona 250 GT uses a low-flow, high-vacuum system to secure rigid media for printing on the printer table. A fabricated aluminum overlay sheet placed on the surface of the table creates the vacuum field. The overlay sheet is pin-registered to the table. A rotary vane vacuum pump is used to evacuate the chamber of air between the sheet and the table. Three air-feed ports connect the chamber to the vacuum pump through a series of manually operated flow valves. These valves are used to activate or shut down the different vacuum zones. In order for the system to work effectively during printing all the circular pockets on the top surface of the overlay sheet connected to an active vacuum chamber must be covered. This creates a closed vacuum system. A bleed valve is provided to adjust the level of vacuum, if so desired.

Vacuum Overlay Sheet

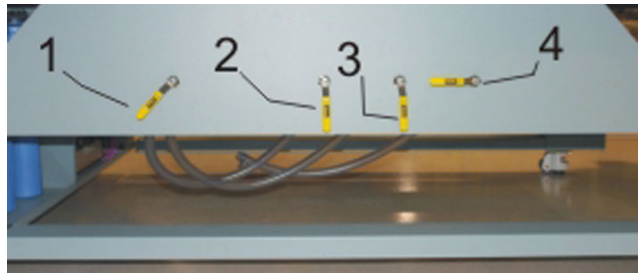
The vacuum overlay sheet is supported on the table by 5mm diameter formed half-shear features. This produces a small gap between the sheet and the top of the table for air to flow. Foam tape applied around the perimeter of the sheet provides an edge seal. Additional foam tape can be used within the perimeter to create up to three custom vacuum zones. The 5mm diameter half-shear feature creates the equivalent of a counter-bored hole or circular pocket on the top surface of the panel. Each of these pockets is connected to the sealed underside of the panel by 1.5mm diameter punched holes.

Default Vacuum Zones

The printer is shipped from the factory configured with one large vacuum zone that accomodates the maximum media size. There are two suggested custom vacuum zone configurations, one for Metric and one for Imperial units. These zones can be set up for common media sizes, and can be modified with additional foam tape. The next section has more information on how to create custom zones (see *'How to Create Custom Vacuum Zones' on page 77*).

Illustration

1 - Bleed Valve partly open	2 - Left Zone is Open	



	3 - Top Zone is Open	4 - Right Zone is Closed		

[43] Vacuum Zone Controls

Vacuum Zone Control Handles

These controls are meant for use with custom vacuum zones. If you only use the factory default of one large zone, make sure all three handles are left in the open position. When you create custom zones the three control valves are used to control which zones of the printer table will have vacuum applied when the table vacuum pump is turned on. To close a zone turn the control handle a quarter turn clockwise.

Vacuum Table Foot Pedal

The vacuum foot pedal toggles the table vacuum on or off. It helps the operator to secure the media on the vacuum table since it allows hands-free operation. The vacuum must be turned on prior to starting a print, and the vacuum cannot be turned off until a print is completed.

Vacuum Bleed Valve & Guage

The bleed valve handle is located to the left of the vacuum control handles. This bleed valve can be adjusted to control the amount of vacuum suction on the media. Less suction reduces artifacts caused by the suction when imaging on flexible media. If you see dimples on the media that are the same size and location as the vacuum table punched holes, introduce bleed until the dimples disappear from the media. The bleed valve is off when its handle is in the horizontal position. To activate the bleed valve, turn the handle to the vertical position. The closer the handle is to the vertical position, the more vacuum pressure is reduced. The guage on the side of the

table above the bleed valve handle provides a visual representation of the actual vacuum pressure.

How to Maintain the Vacuum Overlay Sheet

If an overlay sheet is damaged, replace it. The overlay is an optional commercial item and can be ordered from your local sales representative. You may want to purchase multiple overlays if you need multiple common material sizes or a regular, repeating job that is non-square or unusually sized.

If ink build-up occurs on the overlay sheet, remove the ink. If it is not removed, the print gap could be affected and this may affect the vacuum table's ability to secure the media properly. To remove ink we recommend that you use a paint scraper containing a straight edge razor blade (these can be found at a local hardware store). Refer to the Maintenance section for more detailed instructions.

How to Create Custom Vacuum Zones

Introduction

A fabricated aluminum overlay sheet placed on the surface of the printer table is used to create a vacuum field that is divided into zones. When the printer is installed, a single zone equal to the maximum media size is available. Vacuum zones can be configured in the field to meet specific customer requirements for media sizes. This section describes the procedure to re-configure the vacuum overlay sheet to use custom zones. These recommended zones shown below are either in Metric or Imperial dimensions according to operator preference.

The vacuum control handles are used with the custom vacuum zones. When you create custom zones the three control valves control which zones of the printer table will have vacuum applied when the table vacuum pump is turned on. The left handle controls the Left zone, the middle controls the Top zone and the right controls the Right zone. The vacuum zones are open when the handles are vertical. To close a zone, turn the control handle a quarter turn clockwise.

Purpose

The vacuum system holds the media in place. The three three suggsted zones described in this section are arranged to accommodate common media dimensions. If you create custom zones, they can be turned off or on according to where media is placed. If you have additional aluminum overlays you can quickly change the configuration of the vacuum zones by placing another overlay.

When to do

If the suggested custom zones on your printer do not match with media sizes that you use frequently, it is possible to change the layout of the zones to suit your particular purpose. This helps to minimize the use of tape and placement of media that will not be printed on when the media size does not match exactly with the zone size.

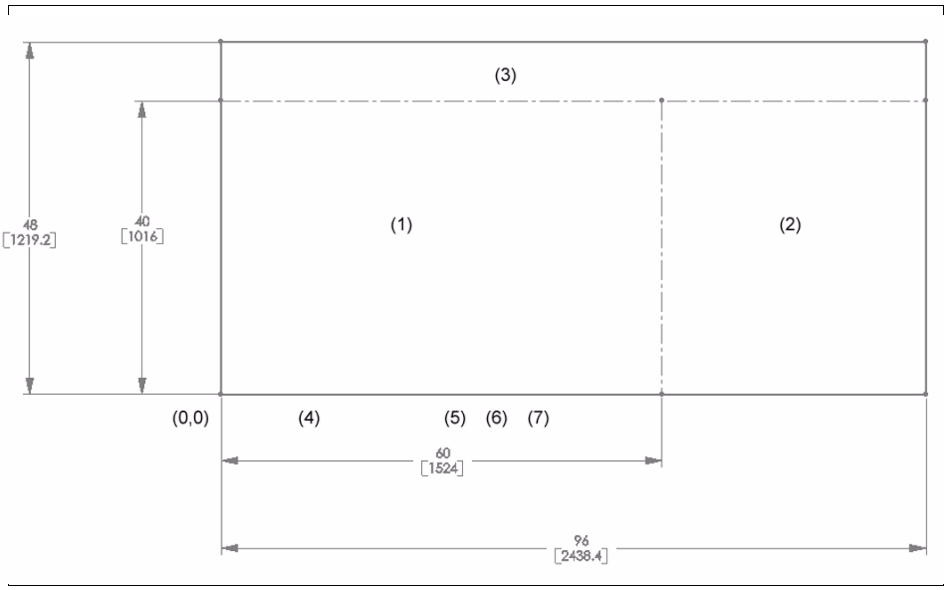
Required tool

foam tape (part # 3010044085 is supplied in the Accessory Kit)

Note: *Make sure you clean the area with isopropyl alcohol before you apply foam tape to create a new zone.*

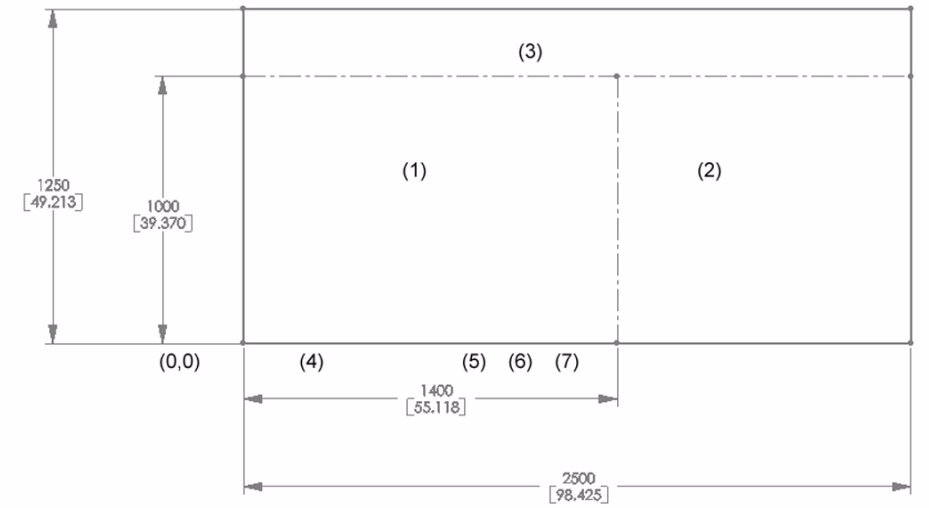
Illustration

(0,0) Print Origin	(1) Left Vacuum Zone	(2) Right Vacuum Zone	(3) Top Vacuum Zone



(4) Vacuum Bleed Valve	(5) Left Zone Control	(6) Top Zone Control	(7) Right Zone Control

[44] Imperial Vacuum Zones



[45] Metric Vacuum Zones

How to Set Up Custom Zones

1. Flip the aluminum overlay sheet over (requires two people).
2. Remove any foam tape that is no longer required in the new configuration
3. Clean with isopropyl alcohol the area of the overlay sheet where the new foam tape is to be applied.
4. Measure and add foam tape in desired locations to create zones. When creating a zone it is recommended active vacuum holes are a minimum of 15 mm from the outside edges of the media. This will optimize the sealing effect between the media and the table.
5. Flip the overlay sheet over and position it on the registration pins.
6. Completely cover all zones, close the bleed valve, turn on vacuum and verify the closed system vacuum level is > 20 inches of Hg. Also verify that the time it takes for the vacuum to establish is less than 4 seconds.
7. Repeat step 6 for the all other zones individually.

How to Manage Media

How to Handle Media

Introduction

Océ Display Graphics Systems has conducted extensive testing of many media. Since the Arizona 250 GT printer is capable of imaging on a wide range of material, we encourage you to explore various media so that you can establish your own criteria for achieving high quality images in your work environment.

Use ICC profiles to control ink density and to help achieve consistent color. If an ICC profile is not available for a particular media and it is not possible or convenient to create one specifically for that media, select an ICC profile for another media that is similar in composition and color and the results will very likely be acceptable. Profiles are much less media-dependant for UV ink printers like the Arizona 250 GT than for solvent-based printers. For access to Onyx ProductionHouse profiles, please consult our web site at:
http://www.dgs.oce.com/PrinterSupport/Arizona250GT_Customer/

Definition

The term media covers a wide range of possible materials for the Arizona 250 GT printer. Essentially, any material that is less than 45mm (1.9 inches) thick, and less than the maximum size of 1.25m wide x 2.5m long (49.2 in x 98.4 in), can be considered viable media. Some materials will hold the ink better than others, so we encourage you to experiment with media to determine what works best for your purpose.

Attention: Do not print on mirrors or any other highly reflective media as UV light is reflected off such media. This results in curing the ink in the heads and thus damaging them.

How to Handle, Store, and Clean Media

See material-specific documentation for recommended handling and storage requirements. General material storage and handling suggestions follow:

- Store media in a dry environment avoiding high temperature, high humidity, or direct sunlight. The size of the material can change according to the temperature

and/or humidity changes of the working environment. Ideally, store media in the same environmental conditions as it will be used.

- Store media flat to reduce tendency to bow. Do not use creased, damaged, torn, curled, or warped material.
- Do not leave material loaded in the printer for an extended period of time. The material may curl resulting in misalignment, jams, or decreased printing quality.
- Some material has a printable side and a non-printable side. If you print on a non-printable side, adhesion and color may be affected.
- Handle media with lint-free gloves. Oil deposits from fingers will degrade print quality. Do not touch the printable side of material.
- Media must be free of lint, dust, oil or other debris. Use techniques and solutions that are appropriate to the manufacturer's recommendations.
- Use a tack cloth to clean media as it will reduce static buildup. Press lightly when you use a tack cloth to prevent residue deposit on the media.

Note: *Dirty media can affect image quality and reliability of printer output. If you wipe the media with a tack cloth before printing, it will reduce ink buildup on the carriage underside. The tack cloth removes static and also removes particles that tend to attract stray ink drops that result in ink buildup. Tack cloths are used by auto-body shops to clean cars before painting. Océ does not provide additional tack cloths beyond what is in the Accessory kit. If you did not receive a cloth or if you wish to purchase additional tack cloths, they are available at local hardware or auto-oriented stores.*

Carriage Collision Recovery

If something on the table is higher than the media (or if the media is thicker than what is actually set in the print job settings), a carriage collision may occur. If a collision occurs, the carriage will stop and display a message on the User Interface panel. After the operator clears the offending media from the table and before the next print is started, printhead maintenance must be performed (see *'Printhead Maintenance' on page 100*).

Media Adhesion

Some media have better adhesion quality than others. Also other factors such as the amount of ink used and the amount of curing energy from the UV lamps can affect adhesion.

If you are having a difficult problem with ink adhesion on a particular media, UV Adhesion Master 720 is a pre-treatment solution that can be used to clean and treat media surfaces to promote good adhesion. It is particularly useful when printing on objects of unknown composition and for use in industrial applications. It is not available in all countries due to substance/transport restrictions.

Thermal Expansion of Media

When imaging on media that will expand when subjected to heat (e.g., styrene or Plexiglas, etc.), don't wedge the media by butting other material against it as this may cause the media to buckle. Also if multiple pieces of the media are used, allow enough space between the pieces to allow for thermal expansion. Placing tape on the table prior to laying down the media will prevent ink from being imaged onto the table. Finally, if you overprint on media that expands when heat is applied, we recommend that you group the desired image with a preceding image so the printer is a consistent temperature when starting to print the desired image.

Thermal Deformation of Media

Some heat-sensitive media may deform when subjected to high heat. If this occurs you can reduce the lamp power from the default setting of 7 to find a compromise level that allows the ink to cure but does not warp the media. You can also try to print uni-directional using only the trailing lamp (to do this set the power of the leading lamp to 0).

Media Registration

Media can be registered on the table using the **table rulers**. These rulers are printed on the table and provide a horizontal and vertical rule that originate from the 0,0 print origin point on the table. The rulers can also help to provide offset distances if you need to start a print away from the origin point.

Alternately, the **media registration cards** can be used to register media if it must be placed consistently away from the table rulers. These PVC adhesive-backed card can be placed anywhere on the table to set new coordinates for print origin to enable consistent registration of media in that location. Make sure that you set the offsets to match the location of the cards. Note: these cards can be stacked, but if more than two of them are stacked, the carriage will collide with them if you print at zero media height. Always check the height if you use multiple stacked cards so that they match the height of your media and the set the carriage height accordingly.

Underlay Board to Reduce Artifacts

Introduction

When printing on thin, flexible, or porous media, the holes in the vacuum table of the printer can cause print artifacts (sometimes referred to as “dimpling”). If you encounter this problem when printing, use the provided underlay board between the media and the table to reduce the problem.

Purpose

To reduces print artifacts (dimples) on thin or flexible media.

When to do

If you use a thin media that shows dimples that correspond to the holes in the vacuum table, then you may need to use the underlay board beneath your media to avoid this problem.

Before you begin

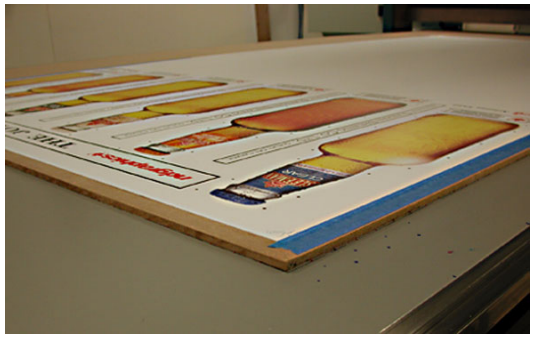
A Medium Density Fiber (MDF) underlay board ships with the printer. If this board is damaged, replacements are not available from Océ Display Graphics Systems. You must source the underlay locally (these boards are used with routers that require vacuum tables, which may help you locate a local supplier). If you can't source an underlay board locally, here is a possible source for them.

North American contact information (a suggested source - other sources of similar products may be available. For other areas, check your local hardware and router supply stores):
THERMWOOD Corp.
904 Buffaloville Road
PO Box 436 DALE, IN 47523
USA Contact: Melanie Tullis
Tel.1-800-221-3865 Ext. 266
email: Melanie.Tullis@thermwood.com

You can get more information from their website:
http://www.woodworkerswholesale.com/

Note: *If you use the underlay board, make sure that you cover over any areas of the board not covered by the media or the vacuum pressure will be reduced. Also make sure that there are no high spots that could cause a carriage collision.*

Illustration



[46] Underlay Board with Media

How to Prepare the Underlay Board

1. Seal the edges of the underlay board with tape or use a liquid sealer to prevent vacuum leaks through the edges of the board.
2. Cover any area of the board not covered by the media to avoid vacuum loss.

Tips On How to Use the Underlay Board:

1. Use scrap pieces of media to cover any exposed area of the underlay board that the carriage will travel over. This prevents the board from lifting off the table and colliding with the carriage.
2. It may be necessary to bleed the vacuum by opening, or partially opening an additional vacuum zone to reduce dimple artifacts.
3. Confirm that the underlay thickness is added to the media thickness and set correctly.

Chapter 6
Ink System Management

Arizona 250 GT Ink

Introduction

The Arizona 250 GT uses UV-curable inks including Cyan, Magenta, Yellow, and Black. Due to the UV curing technology, the ink dries immediately, but can take up to 24 hours to cure fully. In most cases, the printed material may be handled or cut directly after printing. The ink part numbers, which are necessary for ordering more ink, are provided in the table in this section.

These inks have very little odor, but for optimal safety some ventilation is needed. The printer should operate in an area where a good standard of general ventilation is available at 5 to 10 air changes per hour. Mechanical Ventilation must be added where the air changes per hour are under 5 per hour. The minimum space/working room volume for the printer is 69 m3 or 2430 cubic feet.

Note: *Read the section on ink safety (see 'Safety Guidelines for Ink Materials' on page 18) before you handle the ink.*

The printer is optimized for IJC255 UV-curable ink. The ink is supplied to the printer in 2 liter collapsible bags that are loaded into the printer by means of quick-change connectors that are bonded into the top corner. To install on the printer, the bags are inverted and the quick connect couplers are pushed into their corresponding female coupling. This opens up the flow path for the ink. The bags contain tags that identifies them to the printer when they are loaded. This allows the printer to ensure that the correct ink is loaded.

This method of ink delivery has several benefits over bottles or cartridges:
The self-collapsing bags make it easy to see how much ink remains in each bag without having to reference the user-interface.

- Virtually all the ink is successfully extracted from the bag by the printer, reducing the otherwise costly waste of usable ink.
- Ink changes are performed without mess or spills, keeping the environment around the printer clean.
- Ink changes can be performed during printing - this prevent wasted prints and lost time.

Only qualified inks can be used. If a bag of ink with an invalid serial number, expired use-by date, incorrect color placement in the ink bay, or if an expired tag is connected to the printer, then the operator is alerted and an error message is recorded is displayed.
The ink delivery system provides the printheads with ink at the appropriate temperature and pressure. Each printhead has a corresponding ink reservoir on the carriage. Pumps supply ink to the reservoirs on demand. Float sensors in the

reservoirs control the level of ink and initiate demand when required. Ink temperature control is achieved by pumping a coolant fluid through the ink reservoir block and printheads. An internal thermostat on each printhead and one on the reservoir block provides temperature feedback.
The condition of the printheads is maintained by periodic cleaning at the maintenance station on the gantry. During this procedure the operator suctions the printhead nozzle plates, removing ink and possible contaminates in the process (details of this procedure are available in the Maintenance section(see *'Printhead Maintenance' on page 100*)).

UV Flush

UV Flush is used as a cleaning agent for the printheads or to flush the ink lines of ink for a printer relocation or long-term storage.

Attention: Do not install inks that are not certified by Océ Display Graphics Systems for use in this printer, as this may result in:
Poor quality prints, uncured ink in the finished prints (NOTE: This is a serious health and safety risk!), and permanent damage to the ink pumps, filters, ink lines or printheads.

Illustration

[47] Ink Bay With Bags

IJC255 UV-Curable Inks

[23] Ink and Flush Part Numbers

Océ Part Number	Description
3010104960	Black UV Curable Ink
3010104961	Cyan UV Curable Ink
3010104962	Magenta UV Curable Ink
3010104963	Yellow UV Curable Ink
3010105397	UV Flush solution
3010102599	Ink Filter

Ink Filters

The Arizona 250 GT ink system is protected from contaminants in the ink by means of four ink filters. These are easily accessed and can be replaced by the end-user when they become blocked with debris. The expected average lifetime for a filter is approximately 6 months or 11 bags of ink (22 liters). However, some filters can last

longer and some will require more frequent replacements due to the ink color (pigment) and varying rates of use.

Note: *A loss of pigment when printing a nozzle check indicates that a filter is clogged and must be replaced.*

How to Store and Handle UV Ink

To ensure good quality images and to extend the life of printheads in the Arizona 250 GT printer, it is important to have good UV ink management procedures. UV inks must be properly handled and stored correctly.

- Inks must be stored within a temperature range of 15º to 40ºC (59º to104ºF). Exposure to extreme temperatures will reduce the expected life of the ink.
- Do not use ink that is past the "Use by" date printed on the bag.
- Perform Printhead Maintenance every day before printing.
- Swab the printheads with UV Flush at least once a week (and as needed) to dislodge any potential buildup of particles or ink.

Access to MSDS Ink Information

MSDS (Material Safety Data Sheets) for each color of ink and the UV Flush are available on the customer web site at: http://www.dgs.oce.com/PrinterSupport/Arizona250GT_Customer/. The information on these sheets is more detailed than the material found in the section titled "Safety Guidelines for Ink Materials" in this document. Read and periodically review this safety information to ensure optimal safe handling procedures and proper emergency responses are followed when using UV inks and flush.

How to Change Ink Bags

Introduction

The ink is supplied to the printer in 2 liter bags. The bags have a non-spill coupler bonded into the top corner. When installing onto the printer, the bags are inverted and the quick connect couplers are pushed into their corresponding female coupling - opening up the flow path for the ink. If a bag of ink with an invalid serial number, expired use-by date, incorrect color, or expired tag is connected to the printer, then the operator is alerted.

When to do

An ink bag can be replaced at any time. Ink bags should be replaced when:

- The operator LCD panel displays an "XXX ink low" message (the ink bag does not need to be changed immediately but monitor the level of ink remaining and change the bag before the ink runs out.
- The operator sees the bag is empty.
- An ink bag is nearly empty and the operator wants to leave the printer unattended during a long print and does not want the ink to run out. The nearly empty bag can be reconnected and used up later when the operator is present.

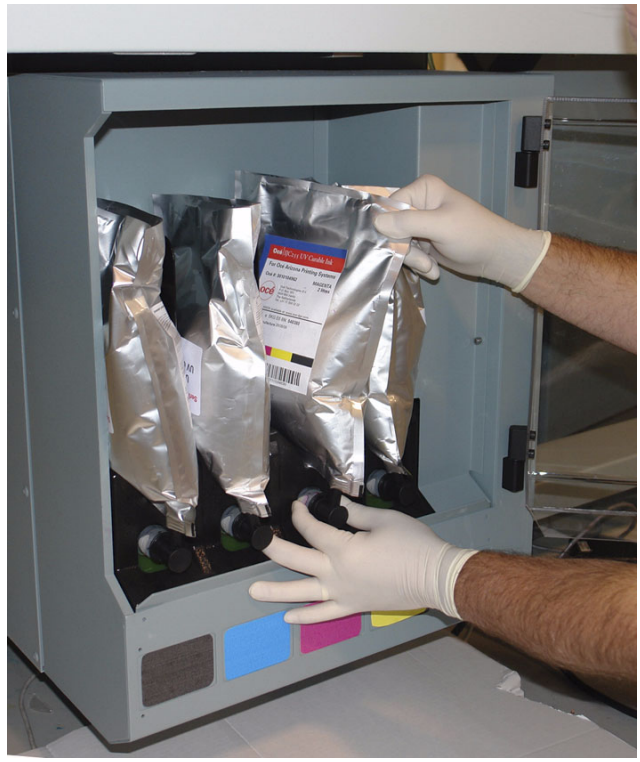
Note: *An ink bag can be changed during a print job. it is not necessary to stop the printer.*

Before you begin

Safety Information - Use appropriate safety equipment - nitrile gloves and eye protectors. Take precautions to avoid ink on your skin or in your eyes.

Caution: Be sure to read the section on Safety Guidelines for Ink Materials before handling UV inks. Also, read the MSDS sheets available from the Customer Support web site for more detailed information on ink safety and handling.

Illustration



[48] Remove the Quick-Release Coupler

How To Change an Ink Bag

Attention: For personal safety, we recommend that the operator always wear nitrile gloves, a protective apron, and safety glasses with side shields when handling inks.

1. Open the clear plastic door on the Ink Station.
2. Identify the the ink bag to be replaced.
3. Press the quick-release coupler button at the bottom corner of the ink bag.
4. Unhook the bag from the top of the ink station.
5. Replace with a new ink bag of the same color.
6. Push the quick-release coupler at the bottom corner of the new bag into place.

Note: *If you place a bag in the wrong ink station (for example, yellow ink in the black ink station) the display will show an error message and the printer will not print until the correct bag is installed.*

Chapter 7
Error Handling and Troubleshooting

Troubleshooting Overview

Introduction

This section covers general problems that may occur with the printer. Malfunctions that trigger system error messages can be caused by human error, a system malfunction, an interface cable malfunction, mechanical printer malfunction and/or printer firmware failure.

Definition

Printer Errors

Some errors are problems that interfere with the print process but do not shut down the printer completely. Typically, these errors are problems that prevent starting a printing job or that interrupt the current print. You should be able to fix these errors without a service call. Other errors stop the printer and prevent operation until the error is resolved. The printer interface informs you as to what is wrong by displaying an error message on the LCD display. If the error message has an obvious solution, apply the appropriate remedy. Otherwise note the exact error message and associated error number and what the printer was doing before the error, then place a service call.

Basic Troubleshooting

Troubleshooting helps you locate the source of errors and fix common problems that can arise during printing.

Troubleshooting Areas:

- Printer behavior
- Print quality
- Data transfer

Example 1

If There is No Power

Is the printer connected to a working power source?

The service should be a dedicated supply that is not susceptible to voltage fluctuations. This service must be provided via an independent, double pole, fused circuit breaker and a circuit ground (computer grade) located near the machine. The service should meet all local and national standards for this type of installation. The circuit breaker should be clearly labeled, indicating the On and Off positions, such as '1' for On and '0' for Off. A suitable air gap should be maintained for safe electrical isolation when in the Off position. The printer relies on this service for primary

branch protection. If the printer is without power, check the local supply voltage and verify that it is set correctly.

Example 2

Drops of Ink Appear on the Media

Check that there is no hair or other debris on the underside of the carriage. Objects can accumulate ink mist and result in small drops of ink.

Check that the ink valves on top of the carriage are all open. If an ink valve is closed, there is no vacuum pressure to hold the ink and it will drip out of the printhead.

If Problems Persist

If problems persist, perform the following actions as appropriate for the situation:
• Check for media that is buckling or sitting too high on the table.
• If you just changed ink in the printer, review the procedures in this manual and check for successful installation.
• Try printing a test print.
• If the printer is not receiving printjobs, check the network cable connection.

Note: If you still have problems, contact your Océ Display Graphics Systems service representative.

Call for Service

Try to eliminate simple problems before you call your service representative. However, it is important to know when to call for service. Without training, servicing the printer yourself may cause further damage. When you have determined that a service call is required, call as soon as possible. Have the following information ready:

- Printer serial number — located near the AC power plug.
- The volume of media printed — available in the Printer Metrics module.
- Error message displayed on the control panel, if any.
- The exact circumstances when the error occurred, such as during printing, or maintenance.
- Note any unusual phenomena, such as peculiar printing, noises, and smells associated with the failure.

How To Improve Quality When Banding Occurs

Introduction

Banding can occur in an image for a number of reasons. Typically it occurs due to neighboring nozzles that do not fire or multiple nozzles that fire with poor directionality. This can occur if the printer sits idle for an extended period of time (e.g., overnight or longer), or if debris has been picked up from the media or table by a printhead. If this happens, perform the Printhead Maintenance procedure to clear the affected printheads (see '*Printhead Maintenance' on page 100*). If banding is evident, print a nozzle check to identify which nozzles of a particular print head are not firing (see '*Print a Nozzle Check' on page 121*). After you perform the printhead maintenance, print another nozzle check to confirm whether the problem has been fixed.

If a print shows banding and a nozzle check print shows more than three separate nozzles out or two or more adjacent nozzles out, the following procedures for recovering clogged nozzles is recommended to improve image quality.

Note: *Keep the table surface clean and ensure the media is clean and free of dust to help reduce banding. Use an anti-static brush, if necessary. Also use a micrometer to accurately measure the media thickness so the proper printhead gap between the printhead and the media is used. If the printhead gap is less than it should be, there is a greater probability of picking up debris on the printheads*

Recovering Clogged Nozzles

When banding appears in an image and nozzle dropouts appear in the Nozzle Check print, we recommend that printhead maintenance is performed. In some cases it may be beneficial to print an image file after maintenance, to exercise the firing of the nozzles, then run the Nozzle Check again.

If some nozzles are still out, perform a purge of only the printheads with nozzles out. To do this, close the ink valves of the colors that don't require a purge, then purge to remove excess inks.

If dropouts still persist, you can also swab the printheads Swab Printheads.

Chapter 8
Printer Maintenance

Maintenance Guidelines

Introduction

The Arizona 250 GT operator is responsible for the regular maintenance of the printer. This section provides detailed information about what is required for proper printer maintenance.

While Océ Display Graphics Systems furnishes guidelines for periodic maintenance, the optimum maintenance schedule evolves from careful observation of your printer over a period of use. For example, some specified maintenance may be required each time you use a particular media. The type of print job can also determine the maintenance schedule. If the printer produces a high volume of solid fill prints, it requires more tending than if it prints low-coverage images. Océ Display Graphics Systems requires that the operator follows minimum cleaning and replacement guidelines as described in this User Manual. A few minutes spent cleaning helps to ensure the highest quality prints. Each production situation is different and involves different types of print jobs, environmental conditions, duty cycles, and volume of work. While we provide guidelines for periodic maintenance, the optimum maintenance schedule depends on operator observation of the printer over a period of use.

Attention: Keeping the printer clean, especially all parts associated with the printheads, assures that your printer performs at its optimum and makes it easier to diagnose a problem, such as a leak. Daily cleaning of all mechanical parts on the printer is highly recommended.

Who Should Do Maintenance?

If your site has a technician in charge of machine maintenance, that person is the optimal candidate. While routine maintenance may be performed by any trained operator, the best maintenance results from familiarity with the printer's internal operation and history.

Operator Maintenance Schedule

The Arizona 250 GT printer requires regular maintenance. Periodic cleaning should be scheduled for some components during the week. A few minutes spent cleaning ensures the highest quality prints. Several areas require maintenance to ensure the highest print quality, and the printer design gives you easy access to all these areas. Diligent application of the maintenance schedule ensures optimum performance from your printer.

The following table provides our recommended maintenance schedule. This is a minimum requirement and some procedures may need to be done with greater frequency. Each of the procedures is explained in detail in this section in the order of frequency required as presented in this table.

[24] Maintenance Frequency

Procedure	Frequency
Printhead Maintenance	Daily and as needed
Swab Printheads	Weekly and as needed
Clean Carriage Underside	Daily and as needed
Remove Ink from Table	As needed
Empty the Waste Tray	When ink is visible in maintenance station
Clean UV Lamp Filter	Weekly and as needed
Refill Coolant	Monthly and as needed
Clean Gantry Rails	Monthly and as needed
Change Ink Filter	After 11 bags of ink or if pigment looks weak
Change UV Lamp	When curing is insufficient
Print a Nozzle Check	When print quality is insufficient or banding occurs
Reprint the Ruler	When the ruler become unreadable
Linear Encoders	Yearly

Maintenance Procedures

Printhead Maintenance

Introduction

The Maintenance Station is located below the carriage. Printhead Maintenance takes place while the carriage is parked. The station is covered by a sliding door that has an open grid in the center that allows any waste ink to drip down through the station and into the waste tray. When you perform printhead maintenance, any excess ink and associated debris are removed from the nozzles with the result that ink drops can jet properly when the nozzles are clear.

Ink fill is disabled when the maintenance station sliding door is open. No more than 4 purges can take place (minimum of 10 seconds between purges) without closing the cover plate and allowing the reservoirs to refill. Multiple purges are not required.

Note: *The nozzle plate on the printhead has a non-wetting coating - contact with this surface may affect the performance of the printhead. Do not wipe the nozzle plate with anything other than the suction-head (or the supplied swabs when following the swab procedure) as this can damage the nozzles and impair performance.*

Purpose

To clean the nozzles of the printheads and thus ensure better image quality and avoid banding.

When to do

Maintenance occurs at the start of the day (after the printer has warmed up) or when necessary (misfiring nozzles, banding in image, etc.).

Note: *More maintenance is required in dusty environments, or when there are fibres protruding from the media, or when printing on transparent media (more reflected UV light hits the printheads).*

Before you begin

Make sure the carriage is in the parked position. The carriage and gantry automatically return to this position after an image is printed. Do not move the carriage or gantry from this position as this will disable the ink pumps and thus

prevent the performance of an ink purge, which is necessary for printhead maintenance.

Note: *It is not necessary to turn off the UV lamps as they are shuttered. However, they will be hot if they are on, so avoid touching them.*

Ink must be at the operating temperature of at least 40° Centigrade (140° Fahrenheit) before you perform printhead maintenance. The Job Control module of the User Interface displays the ink temperature. If the temperature is low, activate the ink heater by clicking its icon on the UI and then monitor the temperature display.

Required tool

3010104959 Cloth-Poly Wipe 10cmX10cm

Note: *Safety glasses and nitrile gloves must be worn when performing maintenance.*

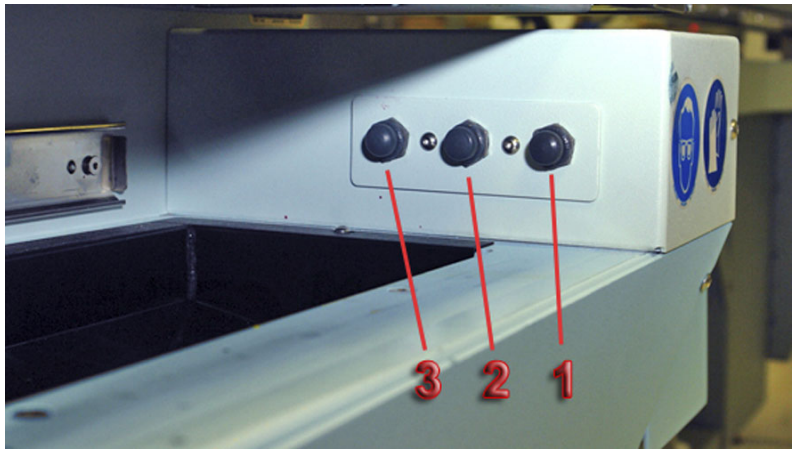
Caution: The underside of the UV lamps may be hot, avoid touching them. Also, be aware that the carriage moves up and down during printhead maintenance and there is a crushing hazard if your hand or arm are placed in the area above the three switches.

Attention: Do NOT press up too hard on the printhead while you swipe it with the suction-head as this can dislodge the printhead and require a service call to re-seat the printhead.

Note: ***Maintenance Station Switches:***
There are 3 switches inside of the maintenance station . They can be operated in any order. For example, you can press the second switch to raise the carriage to remove debris from the underside of the carriage even when a purge isn't required.

1. Switch 1 to purge ink
2. Switch 2 to raise carriage
3. Switch 3 to activate suction pump

Illustration



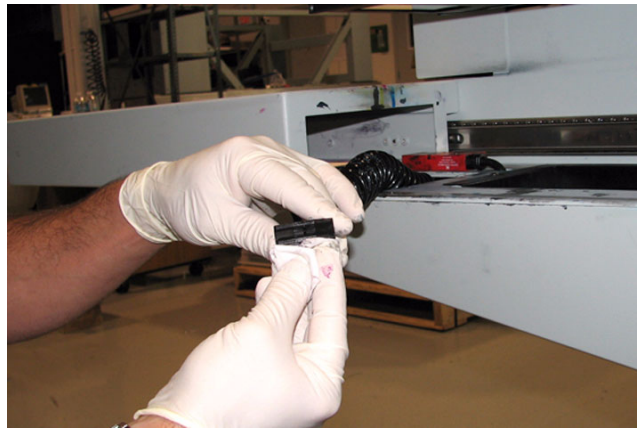
[49] Maintenance Station Switches

How To Perform Maintenance

1. Verify that the ink temperature is at least 40° Centigrade (140° Fahrenheit) before you begin printhead maintenance.
2. Slide the cover out from under the carriage to reveal the maintenance station.
3. Press and release switch 1 to initiate a purge. The carriage will lower to its purge height (4mm above the table surface). Watch the ink as it falls from the heads. After a few seconds most of the ink stops dripping and you can then raise the carriage.
4. Press switch 2 to raise the carriage to its maximum height.

Attention: Be careful not to snag the coiled suction-head hose when removing the suction-head from the holder.

5. Press switch 3 to turn on the suction pump. Pick up the suction-head from the tray at the left end of the maintenance station. Wipe the suction-head with a new, clean lint-free wipe to remove any particles that could damage the nozzles in the printheads.



[50] Clean Suction-Head

Note: *In the next step, start with the left printhead and work to the right as this limits the possibility that drops of ink will fall onto the coiled hose. Also, do not push up too hard on the printhead as you may dislodge it and this will require a service call to fix.*

6. Slide the suction-head slowly along the entire length of each printhead at a speed of approximately 8mm per second (8 seconds per printhead). The suction-head slides on stainless steel strips on the printhead. Check to see that all ink is removed – repeat if necessary.

[51] Swipe Printhead

7. Wipe the suction-head on a clean piece of new lint-free wipe before proceeding to the next printhead.

Note: *During maintenance, be careful not to touch the nozzle plates as this can damage the printhead.*

8. Slide the maintenance station cover back to its closed position. The carriage will move back to its previous print-ready height.
9. Printer is now ready to print images.

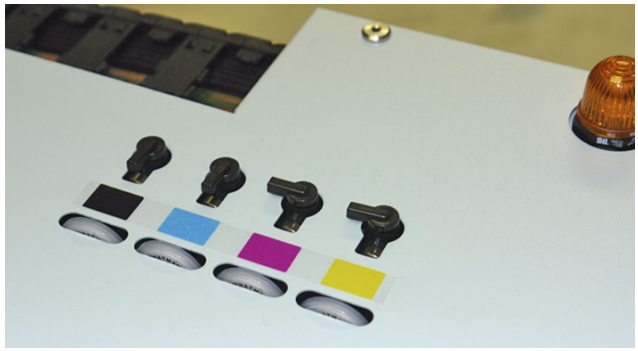
Check Print Quality

1. Print a Nozzle Check to see if any nozzles are out.
2. Print an image to make sure there is no banding or other print quality issues.

Maintenance for Select Printheads

1. On the top of the carriage there are 4 hand-turnable vacuum shut-off valves. If you have performed a printhead maintenance and find that one or more printheads require additional maintenance, turn off the valves of all the other colors.
2. Perform all of the steps for printhead maintenance again, but only on the affected printheads.

Note: *Isolating individual colors to purge does not perform a stronger purge, but it does conserve ink.*



[52] Vacuum Shutoff Valves with Two Turned Off

3. Remember to open any shut-off valves that were closed for this procedure.

Note: *If problems still persist, perform the swab procedure on the affected printhead.*

Swab Printheads

Introduction

To ensure optimal print quality, it is important to periodically clean the printheads with a swab to remove any excess ink or any debris that was not removed by Printhead Maintenance.

Purpose

Important Caution: To maintain print quality it is very important to swab the printheads at least once a week, or more frequently, if required. Failure to do this may result in **permanent printhead damage**.

When to do

At the end of each week, clean the printhead nozzle plates using the swabbing procedure. This procedure may also be used when regular printhead maintenance fails to fix blocked or misfiring nozzles or to remove debris from the bottom of the printhead.

Note: *If UV ink has fully cured on a printhead it must be replaced. Contact your Océ service representative.*

Before you begin

Print a Nozzle Check to determine if any nozzles are not firing properly. This will help to determine whether some or all of the printheads must be swabbed. You can also do a visual inspection of the nozzles (use a flashlight if the ambient room light is not adequate).
A small bottle (125ml) is supplied with the printer accessory kit. Label this bottle as "Flush" and use it only to hold flush for use during the swab procedure. To prevent contamination of the flush in the bottle, never re-dip a used swab in the flush.

Required tools

Foam Tipped Swabs (3010105434 Swab Foam Flex Tip)
Flush (3010105397 Flush UV 5 Liter)
Bottle-HDPE 125ml for flush (3010105433)
Nitrile Gloves
Safety Glasses

Attention: Never "scrub" the printhead with a swab as this will drag debris into other nozzles. Always slowly move the swab across the printhead with the swab at an angle and not perpendicular to the printhead.
Never use Isopropyl alcohol to clean the printheads. Do not allow swabs to be contaminated with any dust or dirt prior to use.
Note that the swab has a seam that can damage the printhead nozzles; use only the semi-curved foam sides of the swab.

Caution: Use appropriate safety equipment — nitrile gloves and eye protectors.

How to Swab a Single Printhead

Note: *Swab one printhead at a time to reduce ink waste during the purge and also to minimize ink spill on your hand. In order to achieve the most effective swab, it is best to swab immediately after a purge while the ink is still dripping from the printheads. Close the ink valve so that the ink is under slight pressure to help clear debris from around the nozzles.*

1. Open the maintenance station cover.
2. Close the ink purge valves of the three other colors, but leave open the valve for the color you will swab.
3. Dip a swab in a small container of flush.

Note: *Use 1 swab per printhead. Do not re-dip a swab into the flush.*

4. Press and release switch 1 to initiate a purge.
5. Within 3 seconds of pressing the purge button, close the remaining purge valve. The carriage will lower to its purge height (4mm above the table surface) and the ink will continue to drip from the printheads.
6. While the ink is still dripping, position the swab at the far end of the printhead and slowly draw the swab towards you. Hold the swab at an angle to limit dragging debris from one nozzle to the next. Do not let the seam in the foam touch the nozzle plate.
7. Rotate the swab by 180 degrees and repeat the previous step.
8. Discard the swab and repeat Steps 2 to 6 for all the other printheads (if needed).
9. Perform Printhead Maintenance.
10. Run a Nozzle Check print or an image test print and verify that all nozzles are firing properly.

Note: *If the problem persists, you can swab multiple times. Use a new clean side of the swab each time (this means a maximum of two swipes per swab). It is possible that as many as ten swipes can be required.*

11. Run another nozzle check, if necessary. When the Nozzle Check print does not show any nozzles out, the printer is ready to produce quality images.

Clean Carriage Underside

Introduction

To maintain optimal print quality, it is important to periodically clean the underside of the carriage to remove any excess ink. If the buildup of ink is excessive, it can be transferred to media and thus reduce print quality.

When to do

As part of the daily maintenance at the start of the day, or as needed, clean any ink that has accumulated on the underside of the carriage.

Note: *The accumulation of ink on the carriage underside is caused, at least in part, by static particles from the media. Dust particles and other debris from the media surface tend to attract ink mist when they have a static charge. To remove particles and to reduce the static charge buildup on the media, use a tack cloth and lightly rub the media surface before you print (see 'How to Handle Media' on page 80) for more information). You may also need to install a humidifier if humidity is below the required minimum defined in the Arizona 250 GT Site Preparation Guide (30% to 70%, Non-condensing is the suggested range for operating the printer).*

Before you begin

Make sure the carriage is in the parked position. The carriage and gantry automatically return to this position after an image is printed.

It is not necessary to turn off the UV lamps as they are shuttered. However, they will be hot if they are on, so avoid touching them.

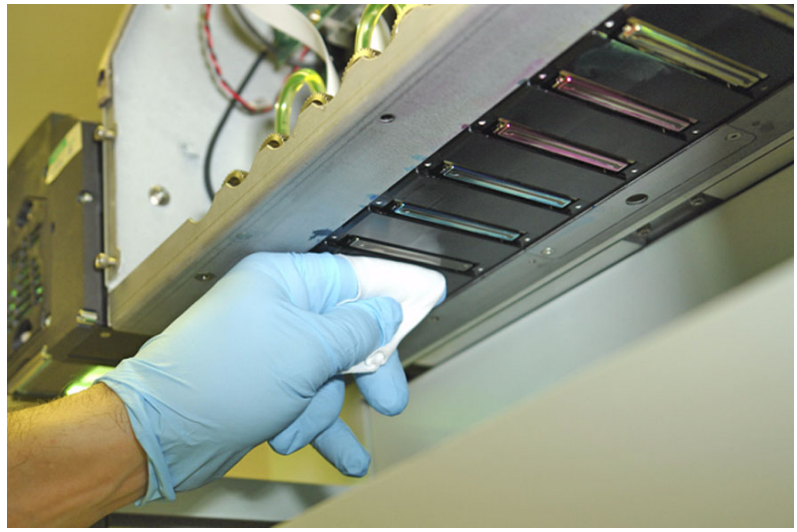
Required tool

Cloth-Poly Wipe 10cm x 10cm

Note: *Safety glasses and nitrile gloves must be worn when you handle ink.*

Caution: The underside of the UV lamps may be hot, avoid touching them.

Illustration



[53] Ink Removal Technique

How to Clean the Carriage Underside

1. Slide the maintenance station cover plate out from under the carriage to reveal the maintenance station.
2. Press switch 2 to raise the carriage to its maximum height.
3. Wrap a clean poly wipe cloth around your index finger.

Attention: In the next step, make sure that you do not touch the nozzles of the printheads. If you happen to touch one with the cloth, you must perform a printhead maintenance. Note that contact with the printhead by any object other than the suction-head used for maintenance can cause damage to the nozzles and result in poor image quality or possibly require a printhead replacement.

4. Slide the cloth along the metal plate between the first two printheads to remove any ink that has accumulated.
5. Reposition the wipe so that a clean area is wrapped around your finger.
6. Proceed to the next space between printheads and slide the clean area of cloth along the metal plate.
7. Repeat steps 3 to 6 until all ink is removed from the spaces between printheads. Use a new cloth wipe, if necessary.
8. Slide the maintenance station cover to the closed position.

Result

Printer is ready to print quality images.

Remove Ink From the Table

Introduction

How often you need to perform these procedures will vary, depending on printer usage and work habits.

Remove Ink from Table

Clean ink from the table whenever necessary. Once UV ink is cured, the best method for removing it from the table is to use a scraper (it is also possible to achieve good results with a razor blade that is set into a handle/holder). Be careful not to scratch the aluminium surface of the table when scraping off the cured ink.

Unplug Vacuum Holes

The vacuum holes in the table surface may become plugged with ink and thus reduce the efficiency of the vacuum. To clear the holes, use an 1.5mm diameter rigid material (e.g., a paper clip) to ream them out, as required (this is not likely a daily task, but must be performed as needed).

Required tools

Poly-Wipe Cloth
Nitrile Gloves

Note: *When scraping ink off the table be sure to remove all of the dry ink particles. Use a portable vacuum and then a wet lint-free cloth to ensure no debris is left on the table that could be picked up by a printhead.*

How to Remove Ink

1. Scrape any cured ink from the surface of the table with a scraper (or a razor blade in a holder).
2. Use a vacuum cleaner to remove the scraped particles of ink and any other debris on the table surface.
3. Use a lint-free cloth soaked in isopropyl alcohol to ensure that the table surface is clear of any remaining particles.

How to Unplug Vacuum Holes

1. Identify any vacuum holes that are plugged with ink.
2. With an 1.5mm diameter rigid material (e.g., a paper clip), ream out any of the holes that have been plugged.
3. Clear any resulting debris with a vacuum cleaner or a wet lint-free cloth.

Empty the Ink Waste Tray

Introduction

The waste tray is located below the Maintenance Station. It accumulates ink that has dripped from the printheads or ink waste that results from a purge when performing Printhead Maintenance or Swabbing the Printheads. The ink drops onto a sloped drain plate at the base of the Maintenance Station and drains from there into the waste tray.

When to do

Check the waste tray periodically and empty, when needed. When you perform Printhead Maintnance, it is a good practice to visually examine the sloped drain plate at the bottom of the Maintanance Station. If ink starts to pool on the drain plate it is time to empty the waste tray (if you can see ink it means the the waste tray is full and is now backing up into the maintenance station). The capacity of the waste tray is approximately 1.5 liters.

Required tools

Cloth or paper towel
Empty semi-transparent plastic container
Nitrile Gloves

How to Empty the Waste Tray

1. Put a cloth or paper towel in place on the floor to catch any drips while the tray is emptied.
2. Place a suitable empty container that holds at least 1 liter under the waste tray drain.

[54] Waste Tray Valve

3. Turn the valve on the waste tray until it starts to drain the waste material.
4. Shut off the valve when ink no longer drains out (or if the container become full).

Note: *The valve closes clean (drip free) but because it has long pipe use a piece of cloth or paper to wipe it clean as some ink can remain inside and drip out later when the printer is in motion.*

5. Dispose of the waste material in a suitable, environmentally-friendly manner.

Clean UV Lamp Filters

Introduction

The top of the assemblies that house the left and right UV lamp cartidges contains a filter that can cause overheating of the lamps if it becomes clogged with dust or debris.

When to do

Check the condition of the filters weekly and clean them as needed. If dust accumulates, this can lead to overheated lamps and results in an error message. It is best to clean the filters periodically to avoid overheating, but if you do receive an error, check for dust or debris. If you get a lamp overheat error and there is no dust on the filter, call for service immediately.

Required tools

Toothbrush (or similar brush device)
Handheld Vacuum appliance

Attention: Failure to clean the filters can lead to overheating of the lamps and can result in a shorter lamp life.

Attention: Do not remove the filters and do not diassemble the lamp cartridge due the danger of high voltage power.

How to Clean the UV Lamp Filters

1. If there is any dust or debris on the surface of the filter, use vacuum cleaner to remove it.
2. Use a small brush to loosen any dust or debris that is embedded in the mesh of the filter.
3. Use the vacuum cleaner to remove any material loosened in step 2.

Fill the Coolant Reservoir

Introduction

The coolant is a thermal fluid used to maintain the temperature of the ink in the printheads and ink reservoirs on the carriage. Temperature control of the ink is required in order to achieve the correct ink viscosity, which affects the jetting velocity of the ink and thus the quality of printed images. The coolant is pumped past a heater that has a thermostat to maintain the coolant temperature. The coolant flows in series through each of the printheads and then returns to the coolant reservoir. Each printhead has an internal sensor that provide temperature feedback. The reservoir block also has a sensor to provide feedback. The coolant reservoir contains an optical level sensor. A sight tube on the side of the gantry, at the opposite end from the carriage, displays the level of coolant in the reservoir. The operator must maintain this level.

Purpose

If the coolant level is low, the ink and printheads cannot be maintained at the proper temperature. Periodically check the level of coolant and add more coolant if it is below the center of the sight tube.

When to do

Check the coolant level sight-tube, located at the side of the gantry, to verify that the level is low. When filled to the proper level, the fluid will be at the center of the sight-tube. If the level of coolant is lower than the center, it is time to fill it. Keep the coolant at the correct level to maintain the proper ink temperature as the coolant is important to that process.

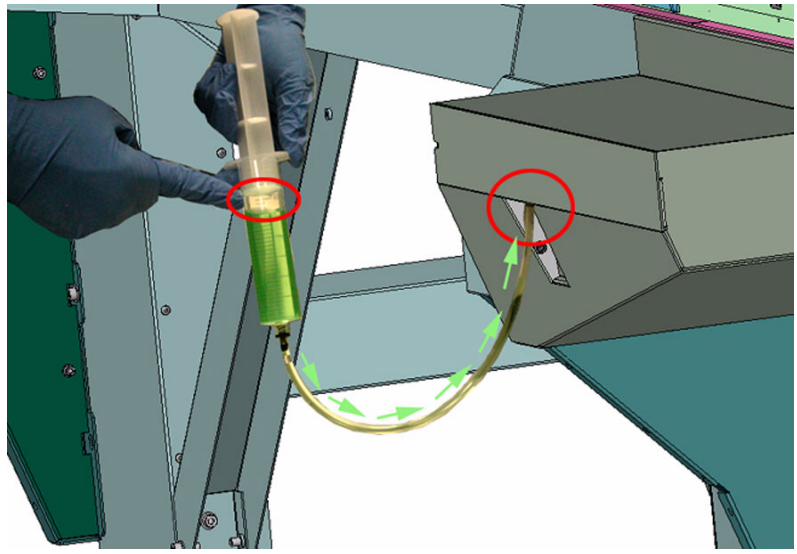
Before you begin

Verify that the coolant level is below the center of the sight-tube. If it is at the center or higher, it is not necessary to add coolant. The sight-tube is located on the side at the right end of the gantry Operator Interface Hardware .

Required tools

Syringe (supplied with Starter kit)
Wear gloves (coolant will not harm the skin, but gloves are recommended).
Coolant

Illustration



[55] Fill Coolant Reservoir

Fill the Coolant Reservoir

1. Open the container of coolant fluid.
2. Insert the syringe into the fluid and draw back the plunger until the syringe is almost full (leave a small amount of air so that you can expel it at the end to avoid fluid dripping from the fill nozzle.
3. Wipe any excess fluid from the hose attached to the syringe (if the hose is wet it is difficult to perform the next step).
4. Insert the hose into the fill nozzle above the coolant level tube.
5. Press on the syringe plunger to inject the fluid. Inject the entire contents of the syringe. Repeat, if necessary, until the coolant level is above the halfway point on the sight tube.

Note: *Do not overfill the coolant as this can cause temperature variations. If the coolant does not flow into the fill nozzle the printer may have a defective nozzle and this will require a service call.*

6. Remove the hose and store the syringe and the coolant fluid container until it is needed again.

Clean Gantry Rails

Introduction

Dust and debris can accumulate on the gantry rails, which run along the length of the table. The bearings that run on the rails are equipped with shields that are designed to keep debris from entering the bearing housing. After a period of time and use, debris can accumulate on the outside of the bearing shields as the gantry travels along the table.

When to do

If you notice any dirt or ink on the gantry rails, or an accumulation of debris on the rails bearings, clean them immediately.

Required tool

Poly-Wipe lint-free Cloth

Attention: In the event of an ink spill on the rail, it should be cleaned immediately, before the bearings have a chance to run over the spill. After the area has been cleaned, wipe the spill area again thoroughly with a water-moistened lint-free cloth to remove any chemical residue before running the gantry over the area again. Slight ink stains that remain on the rail after cleaning are not a major problem.

How to Clean the Rails

1. Power OFF the printer at the AC power On/Off switch located at the side of the electronics enclosure.
2. Turn the switch to the horizontal Lockout position and apply a lock.
3. Use a dry lint-free cloth to remove all visible debris that has accumulated next to the bearing shields. It is only necessary to clean the outside bearing shields. When removing debris always wipe away from the shields.
4. Remove the lock from the Lockout switch.
5. Power ON the printer.

Change Ink Filters

Introduction

Each ink color has a filter that removes any particulate matter from the ink as it is pumped from the ink bag toward the printheads. The ink filters are located at the electronics end of the printer around the corner from the ink bags.

When to do

The ink filter for a particular color of ink must be replaced after 11 bags of that ink have been consumed. The printer monitors ink use and provides a warning when it is time to change an ink filter. If an ink filter becomes clogged it will trap color pigment and affect the color balance of printed images so it is important to change a filter before this occurs.
If the Nozzle Check image prints one color weaker than normal, this is an indication that the ink filter for the affected color is clogged and the filter must be replaced.

Before you begin

IMPORTANT! Open the sliding maintenance station door to disable ink pumps.

Disconnect the ink couplers on all ink bags

Close all four of the vacuum shut-off valves on the top of the carriage.

Required tools

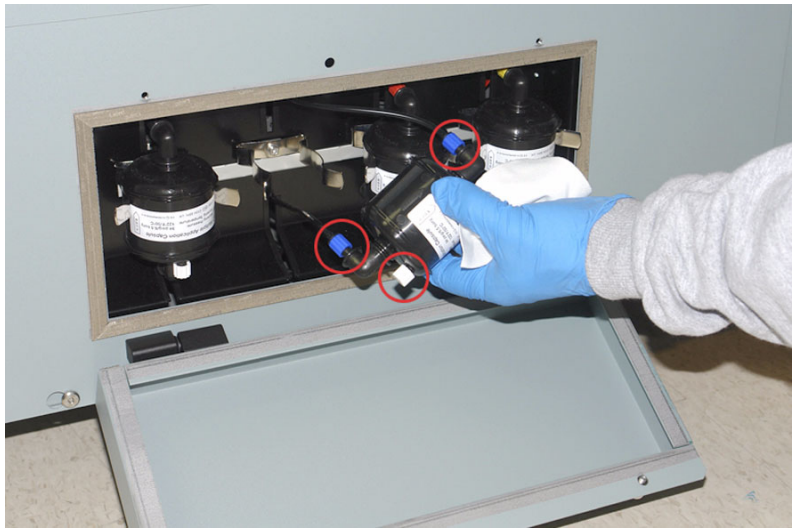
Philips screwdriver (only if enclosure thumb-screws are too tight)
Lint-free cloth

Illustration

[56] Remove Ink Filter Enclosure Cover

How to Change an Ink Filter

1. Open the sliding maintenance station door to disable ink pumps.
2. Remove the two screws that hold the ink filter enclosure cover in place (thumbscrews can be loosened by hand or use a Philips screwdriver if they are too tight).
3. Use a lint-free cloth to catch ink, and place it below the bleed valve at the bottom of the filter. Then turn the the bleed valve (white valve with the red circle in the photo below) counter-clockwise to open it to release pressure, then close it again.



[57] Replace Ink Filter

4. Remove the ink filter from the metal retainer clips.
5. Unscrew the cap on top of the new filter but keep it for use in the next step.
6. Unscrew the cap at the top connection to the old filter (the blue valve with the circle shown in the photo above) and screw it into the top connection of the new filter, being sure to install the filter in the proper direction. Place the cap that came with the new filter on the old filter to prevent ink from leaking out of the old filter.
7. Repeat the previous step for the bottom connection. Wipe off any spilled ink.
8. Insert the new filter in the metal retainer clips. Be careful not to pinch the ink lines.
9. Close the sliding maintenance station door to enable the ink pumps.

Check

1. Check the new filter to make sure there are no ink leaks.
2. Replace the ink filter enclosure cover.

How to Change a UV Lamp

Introduction

The Arizona 250 GT uses two UV lamps, one on each side of the carriage, to instantly cure the ink during printing. These UV lamps have an expected life of 500 hours and must be replaced by the user when they fail or can no longer cure the ink at maximum available power. It is recommended that these lamps be replaced in pairs to ensure even curing in both directions. Each lamp is supplied in a cartridge that is easy to replace.

When to do

The life expectancy of the UV lamp is 500 hours. Océ recommends that both UV Lamp Cartridges be replaced simultaneously to ensure that the curing effect is balanced when printing in opposite directions. In the case of a premature failure or accidental breakage of one lamp, the operator can decide to replace only one lamp but should confirm image consistency after the replacement.

Before you begin

Ensure that the printer AC power is turned off and the lockout device is in place (see *'How to Switch the Printer On and Off' on page 63*).

Required tools

3mm allan key
Lockout device
UV Lamp Cartridge

Caution: The UV lamps and the carriage guard may be hot if the printer has been active. Avoid touching the guard and the lamp assembly until it is cool.

Illustration

[58] Remove UV Lamp Cartridge

How to Replace a UV Lamp Cartridge

1. Turn off the AC power and lockout the printer.
2. Remove the carriage guard by lifting it straight up and then away from the carriage.
3. Use a 3mm allan key to loosen the screw at the top of the cartridge with the lamp that needs to be replaced.
4. Slide the cartridge out of the lamp assembly and replace with a new cartridge.
5. Replace the carriage guard and make sure it is level.
6. Unlock the AC power switch and power on the printer.

Print a Nozzle Check

Introduction

The Nozzle Check print fires each nozzle individually in a manner that allows clogged nozzles to be easily identified by a visual inspection of this special print. The Nozzle Check print consists of the following elements:

- **Print Identification** - Océ Arizona 250GT Nozzle Check Version and Océ Logo
- **Solid Rectangle** - All nozzles are fired simultaneously to exercise them and this results in a solid rectangle 2.125"x 6.75" (5.4cmx17cm)
- **Print Head Identification** - Each printhead is printed in the same order as its position in the carriage. They are numbered from 1 to 8.
- **Even or Odd Row Identification** - Each color has two printheads. One printhead of a color prints the odd rows and the other prints the even rows.
- **Different Drop Sizes** - Each nozzle is fired at five different drop sizes, resulting in 5 columns of data. Small tick marks are added to the four corners of the 5-column block of data.
- **Individual Nozzles Fired** - Each nozzle is fired multiple times. Clogged nozzles can be easily identified because the 5 mm (7/32") line associated with the clogged nozzle will be missing from the image. This is often referred to as "nozzle dropout".

Purpose

The Nozzle Check is used to verify the condition of the nozzles. Clogged nozzles (nozzle dropouts) can cause banding. Perform printhead maintenance or swab a printhead to unplug clogged nozzles.

When to do

Print a Nozzle Check after performing printhead maintenance or when troubleshooting banding problems caused by nozzle dropouts.

Before you begin

The Nozzle Check has been designed to fit on a piece of media that is 36" (91.5 cm) and is 2.125" (5.4 cm) wide. Since you are likely to print more than one when you diagnose nozzle problems, make sure your media is wide enough.

Ink must be at the operating temperature of at least 40 degrees Centigrade (140 degrees Fahrenheit) before you print a nozzle check. The Job Control module of the User Interface displays the ink temperature. If the temperature is low, activate the ink heater by clicking its control button and then monitor the temperature display.

Required tools

Blue LED view light (sometimes needed to enhance contrast in the Yellow area).
Océ I/O paper

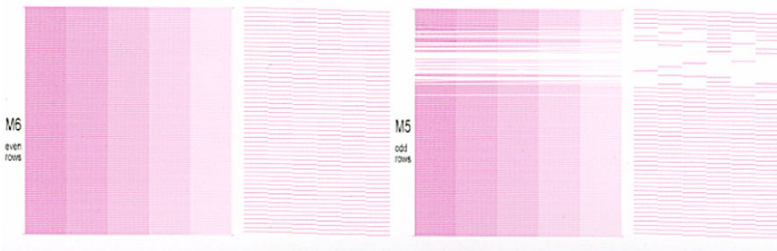
Note: *Usually, two or more Nozzle Checks will be printed to verify that nozzle issues are resolved. To calculate the required offset when you print multiple consecutive nozzle checks, add a horizontal offset of 2.5" or 60 mm to each consecutive print.*

How to Print the Nozzle Check

1. Place a piece of Océ I/O paper on the printer table.
2. Select the Nozzle Check icon at the right end of the Command Toolbar to place the nozzle check into the Active Print Job list (you can also add a Nozzle Check to the active print list when you select it from the Special Prints module).
3. Modify the horizontal offset (only if a previous nozzle check was printed on the same piece of media).
4. Confirm media thickness.
5. Activate the table vacuum.
6. Push the printer Start button to begin the print.

Check

The Magenta section of the Nozzle Check print shown in the figure below indicates that multiple nozzles are out.



[59] Nozzle Check Print Magenta Section

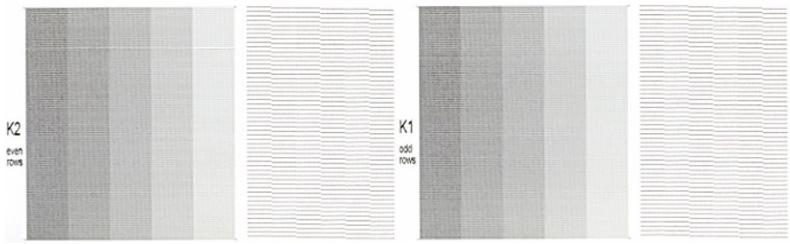
Correction

1. To correct the nozzle dropout problem illustrated above, perform Printhead Maintenance (see *'Printhead Maintenance' on page 100*) on the colors that show dropouts, and then print the Nozzle Check again.
2. If the second Nozzle Check still shows nozzle dropouts, swab the printhead until the dropouts don't show up in the print (see *'Swab Printheads' on page 105*)

Result

When a printhead does not have any dropouts, it will look like the Nozzle Check print of the black (K) section illustrated below.

Note: *There is an indication of some poor directionality in one of the nozzles illustrated in the top left section of the sample below, but it will not affect image quality (although it could, if multiple adjacent nozzles show this problem).*



[60] Nozzle Check Print Black Section

Appendix A
Application Hints and Tips

Hints and Tips

Introduction

The following recommendations are based on our experience with the Arizona 250 GT printer. They are offered as starting points or suggestions for dealing with various situations. Since this information is subject to change please check our web site at http://www.dgs.oce.com/PrinterSupport/Arizona250GT_Customer/ for the current list of "Application Hints and Tips". The hints are tips are grouped into three categories: Maintenance, Printing, and Color and Profiling.

Maintenance Hints and Tips

Situation	Hint and Tips
Routine Maintenance	For optimal printer performance always perform the recommended preventative maintenance i.e. the daily, weekly, monthly etc. Refer to the Maintenance Guidelines for details.
Printhead Maintenance	Always suction the excess ink from the print heads after purging, and then run a nozzle check to ensure all the print head nozzles are firing properly. See (see '*Printhead Maintenance' on page 100*).
Spare Ink Filters	The printer will indicate when it is time to change ink filters (either in six months or after 11 bags of ink). It is a good idea to stock at least one or more spare filters.
Spare Lamp cartridge	When the lamps are nearing end of life, a spare UV Lamp cartridge can be ordered to minimize the down time when a lamp needs to be replaced. However, we recommend that you replace lamps in pairs.

Printing Hints and Tips

Situation	Hint and Tips
Maximizing Throughput	To maximize printer throughput, orient jobs so that the long side of the image to be printed is oriented in the direction of carriage travel. Also, if possible nest multiple jobs in ProductionHouse to be printed on either a single or multiple pieces of media at the same time.
Imaging on Multiple Pieces of Rigid Media at the Same Time	You can image multiple pieces of media at the same time. If placing multiple pieces of media that are prone to thermal expansion you should use a gap between the pieces of media to prevent buckling due to thermal expansion during printing. The best way to achieve this is to use a template mask (cutouts where pieces of media are to be placed), with tape or scrap media that is thinner than the media to be printed on. Make sure the template mask media is not prone to media thermal expansion.

Situation	Hint and Tips
Thermal Expansion of Media	Some media, such as Styrene, or Plexiglas, is subject to expansion when subjected to heat. If multiple pieces of these media are used, allow enough space between the pieces to allow for thermal expansion. When overprinting on media that will expand when heat is applied, we recommend that you group the desired image with a preceding image so the media is a consistent temperature when starting to print the desired image.
Printing on uneven surfaces	Use a thickness equal to the thickest value of the media, and print unidirectional.
Overprinting Techniques	Overprinting may be required on some media to build up ink density - e.g., backlit material. Hitting color and proper linearization when using overprinting is difficult. One technique is to print an overprinted Pantone Chart on the same media then alter the colors of a job in the front-end software (e.g. Photoshop or ProductionHouse) to match the desired printed Pantone color. In most cases only one overprint is required to achieve the desired ink density.
How to set UV Lamp Power	The default lamp power setting is full power (7). However, for some media it may be better to reduce the lamp power to minimize thermal deformation of media, gradient banding, and ink chipping when post-cutting bleed images.
Printing Double Sided Jobs	For work-and-turn jobs (flip media in length of table direction), 1) Measure the exact length of the media and enter this in the ProductionHouse layout Preview Dialog Media Width Horizontal field. 2) Select Center Horizontal. 3) Place the media at the origin on the table. 4) Print the Image, then flip the media and print on the backside. For work-and-tumble jobs (flip media in the width of the table direction) 1) Measure the exact width of the media and enter this in the PosterShop Layout Preview Dialog Height (Vertical) field 2) Then select Center Vertical. 3) Print the image, then flip the media and print the backside.

Situation	Hint and Tips
Imaging with Bleed	The Arizona 250 GT is capable of printing full bleed images, i.e. images printed slightly larger than the media size to ensure that the printed images goes to the all the way to media edges. However, since this implies some ink will be printed off the media is it very important a sacrificial scrap piece of media - either the same height or up to 1 mm less be placed on the bleed edges of the media. **Failing to do so causes ink to accumulate on the print head nozzle plates and carriage face plate and will, over time, degrade printer performance resulting in banding.**
Masking off unused vacuum areas	A variety of scrap materials can be used be used to mask off unused vacuum areas. Vinyl and cut vinyl transfer paper that is sticky on one side are good choices. The mask media can hang of the vacuum control side of the table. Masks can either be strips or templates with cutouts where the piece or pieces of media are to be placed. Remember to not use a media masking material that is thicker than the media to be printed on.
Imaging Porous and Flexible Media on the Flatbed	Use the vacuum bleed valve and gauge to reduce the amount of vacuum to the minimum amount required to hold the media to the table when printing on porous and flexible media. This will reduce artifacts caused by the vacuum holes in the table. Also, an MDF spoil board (similar to boards used on a router table) can be used to eliminate artifacts caused by the vacuum holes.

Color and Profiling Hints and Tips

Situation	Hint and Tips
Setting Ink Restrictions	The Arizona 250 GT uses greyscale variable drop size technology. Some of the larger drop sizes are not allowed for a particular print mode. Choose the appropriate ink configuration for the print mode desired when creating a media. Also, when setting restrictions take into account that at some point adding an additional volume of ink will not increase the Dmax. Setting the optimal Dmax depends on your objective, if the goal is to have rich saturated colors and the largest color gamut possible you should choose a higher Dmax and if your goal is color accuracy and producing images in accordance to SWOP standards. For SWOP standards you may want to choose Dmax values that are about 0.1 higher than the SWOP targets of C,M 1.4, Y .8, K 1.6. When a media is created for quality mode, it can also be used for Quality-matte mode.
Increasing Ink Density	Use ICC profiles. Or use color replacement to change 100%K to a rich black. 40% C, 30% M, 30% Y, 100 %K have given good results on a variety of media. The maximum recommended values are 60% C, 40% M, 40% Y, 100% K.
Using a generic ICC profile	If an ICC profile is not available for a particular media and it is not possible/convenient to create one specifically for that media, select an ICC profile for another media that is similar in composition and color and the results will very likely be acceptable. Profiles are much less media-dependant for UV ink printers like the Arizona 250 GTthan for solvent ink-based printers.
PhotoShop RGB to CMYK conversion	When converting RGB images to CMYK in PhotoShop we recommend that you use a 400% ink limit a, 20% dot gain compensation, and light black generation. Good results have been achieved printing linearized with all profiles turned off.
Hitting Pantone Colors	Use ICC profiles and change default rendering intent from Saturation to Perceptual.
Choosing a Spectrophotometer	Onyx ProductionHouse supports a variety of Spectrophotometers for profiling. Our recommendation for a spectrophotometer that can be used on both rigid and flexible media is the Gretag MacBeth Eye-One (with a UV cut filter).

Situation	Hint and Tips
Long USB Cable for Eye-One Spectrophotometer	We recommend that you purchase a 16' USB cable (maximum USB cable length spec.) or a 10' USB cable extension for use with the Eye-One Spectrophotometer.
Exporting Spectrophotometer Readings	When making a media model (linearization) or ICC profile we recommend that the Eye-One Spectrophotometer readings are exported immediately after reading the patch values. The reason is that if the patch readings are saved and backed up, profiles can be reconstructed at a later date if required.

Index

A

AC power 63
AC power plug 63
Alphanumeric input 48

B

Banding 96
Beacon Light States 44
Beacon Light Status 26

C

Carriage Collision 81
Carriage Guard 42
Carriage Interlock 25
Change an Ink Bag 91
Clogged Nozzles 96
Coolant Reservoir 114
Custom Vacuum Zones 77

E

Emergency Stop buttons 44
Emergency Stop Function 25
Emergency Stops 42
Emergency-Stop button 25
Extended Power Off 64

F

Flatbed button 72

G

Gantry Rails 116
Graphical User Interface 46

I

ICC profile 80
Ink Bag 90
Ink Consumption 16
ink delivery 86
Ink Filters 42, 88

L

Lock Out 65

M

Maintenance 98
Maintenance Schedule 98
Maintenance Station 42, 100
Measurement Units 57
Media Adhesion 81
Media Storage 80
media thickness 72
MSDS (Material Safety Data Sheets) 89
MSDS Ink Information 89

N

network connection 67
network connection settings 56
network name 67
Nozzle Check 105, 121
nozzle plate 100

O

Onscreen Keyboard 46
Onyx Printer Driver 67
Operator Control Station 42
Operator Interface Module Tabs 46

P

piezoelectric 16
Print button 73
Print Job Control 48
print quality 105
Printer Driver 67
ProductionHouse 16

R

Reduce Artifacts 83

S

safety interlock system 25
Safety Labels 27
Safety Training 62
Special Prints 46
Specifications 14
suction-head 102

T

Thermal Expansion 82
Training 62

U

Underlay Board 83
Upgrade 46
User Interface Settings 57
UV Flush 86

V

Vacuum Bleed Valve 42, 75
Vacuum Overlay 74
Vacuum Pump Timeout 74
Vacuum System 74
Vacuum Zone Control 42
Vacuum Zones 72, 74
VariaDot 16
Ventilation 18, 86